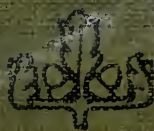




HISTORY AND  
GEOGRAPHY  
OF  
OHIO



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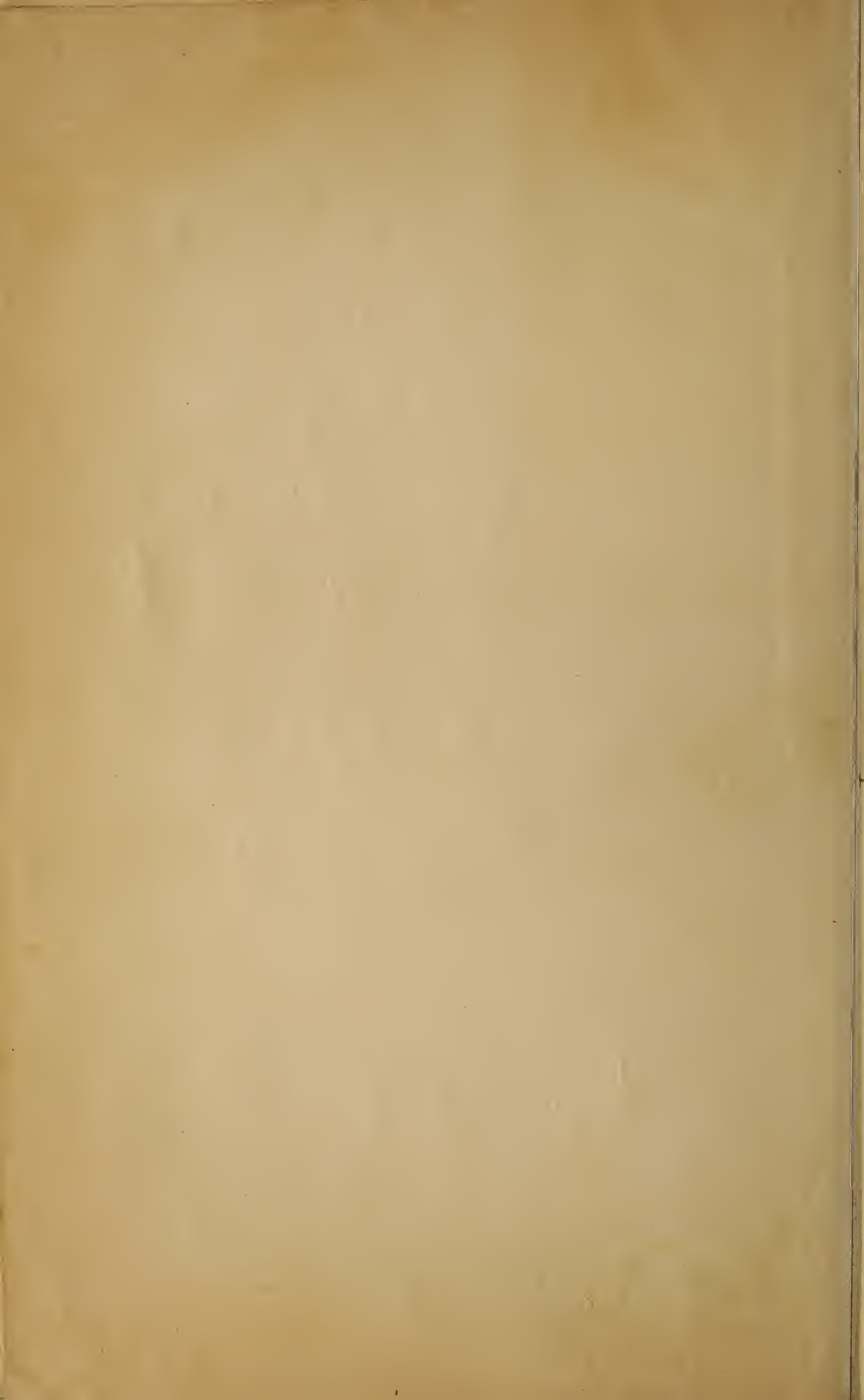
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## Our Presidents—A Memory Rhyme

By Isabel Ambler Gilman

EDITOR'S NOTE: Mrs. Gilman writes us that this memory rhyme has helped hundreds of eighth grade pupils to pass their history examinations. It was included in the author's book of verse entitled "Echoes from the Grange," published in 1906. Since then it has been brought up to date.

First on the list is Washington, Virginia's  
proudest name;  
John Adams next, the Federalist, from Massa-  
chusetts came;  
Three sons of old Virginia into the White  
House go—  
'Twas Jefferson, and Madison, and then came  
James Monroe.

Massachusetts for one term sent Adams call-  
ed John Q.,  
And Tennessee a Democrat, brave Jackson  
staunch and true.  
Martin Van Buren of New York, and Harri-  
son we see,  
And Tyler of Virginia, and Polk of Tennessee.

Louisiana Taylor sent; New York Millard  
Fillmore;  
New Hampshire gave us Franklin Pierce;  
when his term was o'er  
The Keystone state Buchanan sent. War  
thunders shook the realm,  
Abe Lincoln wore a martyr's crown, and  
Johnson took the helm.

Then U. S. Grant of Illinois who ruled with  
sword and pen;  
And Hayes, and Garfield who was shot, two  
noble Buckeye men.  
Chester Arthur from New York, and Grover  
Cleveland came;  
Ben Harrison served just four years, then  
Cleveland ruled again.

McKinley—shot at Buffalo—the nation plung-  
ed in grief,  
And "Teddy" Roosevelt of New York served  
seven years as chief.  
Taft of Ohio followed him. Then Woodrow  
Wilson came—  
New Jersey's learned Democrat; war set the  
world aflame;

And when the tide of strife and hate its bane-  
ful course had run,  
The country went Republican and Warren  
Harding won.  
No duty would he shirk,—he died while on a  
western trip;  
Coolidge of Massachusetts then assumed the  
leadership.

*Hoover*

*Truman*

*Eisenhower*



### "THESE ARE MY JEWELS"

The famous words of the Roman matron, Cornelia, are inscribed on this statue which stands near the northwest corner of the State House at Columbus. Below the heroic figure of Cornelia are statues of seven of Ohio's illustrious sons—Sherman, Grant, Sheridan, Stanton, Garfield, Hayes, and Chase.

# HISTORY AND GEOGRAPHY OF OHIO

BY

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# HISTORY AND GEOGRAPHY OF OHIO

## INTRODUCTION

### WHY WE STUDY OHIO

"God sifted a whole nation that he might send choice grain into the wilderness," said William Stoughton in 1688. The grim old Puritan was speaking of the early founders of New England ; but his statement is equally true of the New England men who founded Marietta, Ohio, just one hundred years later. The second *Mayflower* which bore Putnam's band down the Ohio River in 1788 was freighted with the fortunes of the great Northwest. None but the daring and the enterprising attempted to cross the Alleghenies in those early days, and none but the physically strong reached the Ohio.

To Virginia, Pennsylvania, and New Jersey, as well as to New England, early Ohio was indebted for her noble pioneers. They were men and women strongly devoted to liberty, education, and religion ; they were industrious and courageous, rugged and sturdy ; they were pioneers who came to Ohio not to make fortunes, but to make homes. On Ohio soil these men from New England, the Middle States, and the South first met, fraternized, and united to form one people. Thus the original Ohioan was a composite of the best there was in American blood and training. All the streams of national tendencies were here united to form the commonwealth of Ohio. The state became great because in her history and institutions the characters of New England, Virginia, and Pennsylvania were plainly written.

Nature as well as man contributed to make Ohio's greatness. With the great waterway of Lake Erie on her northern border, and the Ohio River on her eastern and southern boundary, Ohio offered a wonderful system of transportation to her settlers. With natural resources in soil, mine, and forest unsurpassed and probably unequaled by any other commonwealth, Ohio was bountifully endowed with nature's gifts. Situated midway between the Atlantic States and those farther west, Ohio lay directly in the path of the westward movement; and she reaped its benefits as the natural gateway to the great West.

If you look at a map of the United States, you will see that Ohio is one of the smaller states in area, with a land surface of 40,740 square miles. The state is nearly square; the longest east-and-west line that can be drawn within its limits is 210 miles, the longest north-and-south line is 225 miles. But although the thirty-fifth state of the Union in area, Ohio ranks fourth in population and in wealth, being surpassed only by New York, Pennsylvania, and Illinois.

Ohio has made much of our nation's history. Within her Valley was begun the great contest between France and England, with the continents of North America and Asia as the stakes of the war. From that day to the present, the history of Ohio is the history of the United States. The Revolution, the westward movement, the War of 1812, the slavery dispute, the establishment of free schools, the struggle for the Union,—who can tell the story of these events without narrating the history of Ohio?

In every war we have fought, in every place of danger where battleflags were unfurled, Ohio men have been present to answer their country's call; and Ohio blood has been shed on every battlefield where the supreme sacrifice was required. In time of peace as in war, the influence of Ohio has been always manifest, often dominant, and has helped to write every page of our political and social history.

Ohio has been called the Mother of Presidents, for seven of our chief executives were born within her borders. Ohio is also the Mother of States. She has contributed more of her



native-born children to the building of other commonwealths than any other state except New York; and in proportion to population, even more than the Empire State. Over one million sons and daughters of Ohio are today living in other parts of the United States. And while Ohio has been making this great contribution to our national expansion, her own population has increased more than a hundredfold, from 45,000 people in 1803 to 5,759,394 in 1920.

Patriotism, the greatest of our national ideals, comprehends all the rest.

O beautiful and grand,  
My own, my Native Land!  
Of thee I boast:  
Great Empire of the West,  
The dearest and the best,  
Made up of all the rest,  
I love thee most.

ABRAHAM COLES, "My Native Land"

Love of country is indeed a sentiment common to all peoples and to all ages; but no land has ever been dearer to its people than our own Ohio. No state has a history more inspiring, no state has institutions more deserving of patriotic love. Ohio stands for democracy, for liberty under the law. Ohio stands for the heroic courage and self-reliance of her early pioneers, for the equality of opportunity which led her canal-boat boy to the presidency. Ohio stands for the great system of free public schools, for service and self-sacrifice in the cause of humanity. Always, and above all else, Ohio stands for loyalty to the Union of States. When you salute the flag of the Republic, you should resolve that your own life will be dedicated to these Ohio ideals, which are likewise the ideals of America. You should remember that he is the truest American patriot, and the best son of Ohio, who understands the meaning of these ideals, and who pledges his own life to their realization.

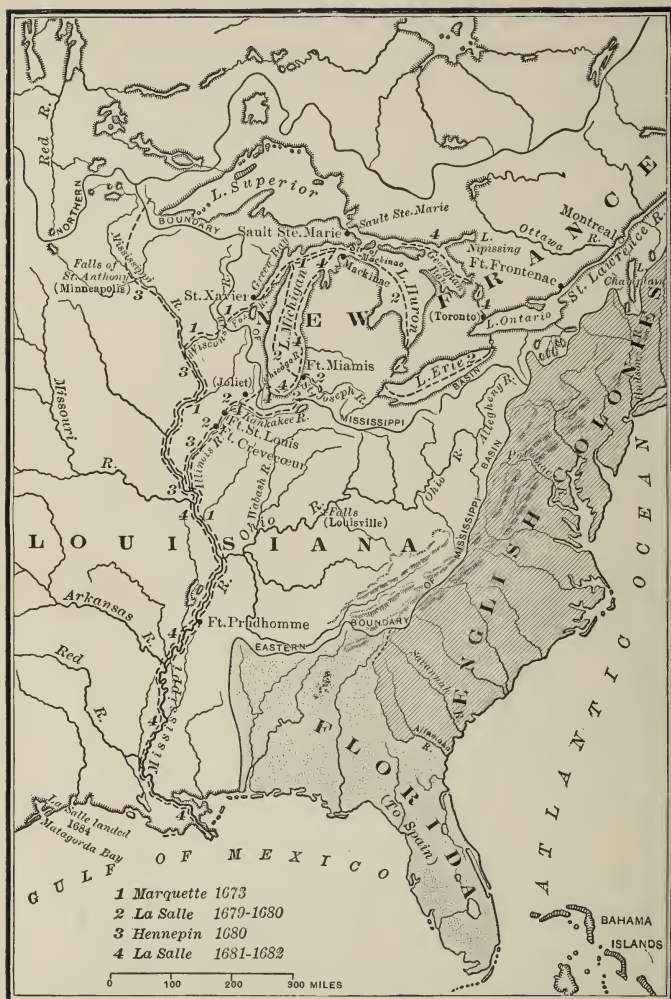


FIG. 1. French explorations on the Great Lakes and the Mississippi

## CHAPTER I

### THE NORTHWEST UNDER THREE FLAGS (1760-1802)

#### *Problem I. Why the English were more successful than the French as colonists*

Discovery of the Ohio and the Mississippi. Ohio takes its name from the Iroquois word *Ohion-hiió*, meaning "beautiful river." The first white man to visit Ohio may have been the great French explorer, La Salle. Many historians, including the great Parkman, accept La Salle's own statement that he made a voyage to the Ohio in 1670 and descended the river as far as the rapids at Louisville.

La Salle did not continue on to the Mississippi, and the honor of this discovery belongs to two other French explorers, Father Marquette and Louis Joliet. Father Marquette was a Jesuit priest living on the straits of Mackinac. He was told by the Indians of a great river toward the west; he determined to discover this river and hoped to convert the natives to Christianity. In company with Louis Joliet, a fur-trader, he set out in 1673 on one of the greatest explorations in history. In two canoes the little party of seven men crossed Lake Michigan to Green Bay, entered the Fox River, dragged their canoes over the portage to the waters of the Wisconsin, and finally reached the Mississippi. They followed its course to the mouth of the Arkansas, then returned to Canada to report what they had seen.

La Salle claims Louisiana for France. Inspired by Marquette's discovery, the great La Salle determined to explore the wilderness through which "The Father of Waters" wound its course. After many mishaps this intrepid explorer reached the mouth of the Mississippi in 1682 (Fig. 2). He had reached that river by way of Lake Michigan, the Chicago portage, and the Illinois River. La Salle took formal possession of all the vast basin

drained by the Mississippi, naming the newly discovered country Louisiana in honor of Louis XIV, king of France.

In this way Ohio became part of Louisiana, the vast western domain claimed by France in North America. The French possessions in North America included not only Louisiana, but



FIG 2. La Salle and his followers at the mouth of the Mississippi

also the entire St. Lawrence Valley, the region explored by such great French pathfinders as Cartier, Champlain, and La Salle. It was a vast empire, held together by a chain of rude forts and trading stations stretching from Quebec at the north along the St. Lawrence River and the Great Lakes, thence down the Mississippi to the fort at New Orleans.

English settlements in North America. France had, however, a rival to dispute her claims to the heart of the continent. The close of the seventeenth century found the English colonies firmly

established along the Atlantic coast. The Appalachian barrier marked the limits of their westward growth, but England claimed the entire region westward to the Pacific Ocean. Ignoring the French title, the king of England granted a charter to Virginia extending "from sea to sea," right across the Louisiana territory claimed by France.

**The struggle for a continent.** Soon the great struggle began, to determine whether France or England should possess the interior of the continent. By right of discovery and exploration,



France had the better claim (Fig. 1). However, few of her people came to dwell in the wide domain opened up by the French explorers, and the few who came usually preferred the fur trade to the difficult work of farming. But the Englishman came with his family to establish a permanent home in the New World. Having settled the narrow strip of land between the Atlantic coast and the Appalachians, the English wanted more room in the center of the continent over which their growing colonies might expand.

The issue between the rival nations was decided in a long series of hard-fought wars. These wars extended over a period of nearly a century (1689-1763), with about thirty years of actual fighting. The final conflict, called the Seven Years' War, lasted from 1756 to 1763. It began with a struggle for the possession of the Ohio Valley, but it became a world-wide contest on land and sea, with battles in Europe and Asia as well as in North America.

*Problem II. Why the conflict between France and Great Britain began in the Ohio Valley*

The contest for the Ohio Valley. The beginning of the Seven Years' War found the French in possession of the Ohio Valley, with trading posts on the Maumee, Sandusky, and Cuyahoga rivers. However, English fur-traders were invading this region, carrying on a profitable trade with the Indians and winning their friendship. The French determined to build a chain of forts extending from the shores of Lake Erie to the Ohio River, so as to form a barrier against this westward movement of the English. In 1749 the governor of Canada sent Céloron de Bienville with a small company into the upper Ohio Valley; they were to warn all intruders that this region was claimed by France. On reaching Lake Erie the explorers carried their canoes overland to Chautauqua Lake, and from this point passed down the Allegheny River to the Ohio. Wherever they saw English traders they warned them to leave the country. The Frenchmen passed down the Ohio River until they came

to the Great Miami, then descended the Maumee River to Lake Erie and reached Montreal after a journey of 3000 miles.

In the same year that the French were exploring the Ohio Valley, some Virginians determined to plant a settlement



FIG. 3. Pontiac, chief of the Ottawa Indians

Pontiac was born about 1720 on the Maumee River near the mouth of the Auglaize. He is said to have led the Ottawa Indians as an ally of the French in the defeat of Braddock's army. After the surrender of the French possessions in North America (1763), he united the Indian tribes of the Northwest in a confederacy which for a time threatened the extermination of all the settlements west of the Alleghenies

there. The Ohio Company, as their organization was called, secured from the king the grant of 500,000 acres of land on the south side of the Ohio, between the Monongahela and the Kanawha rivers. Christopher Gist, a fur-trader, was sent to explore the country and select lands for the company. The French were alarmed at this preparation for settlement in the territory claimed by them. Unless they could keep control of the Ohio River, their communication with Louisiana through the center of the continent would be destroyed and their possessions cut in two. The governor of Canada, Marquis Duquesne, was instructed to build forts

along the Allegheny and Ohio rivers, so as to connect the St. Lawrence settlements with the Mississippi. Governor Duquesne sent out an armed expedition which landed at Presque Isle on the southern shore of Lake Erie, where the city of Erie now stands. Fort Le Bœuf was built on a northern tributary of the Allegheny, and Fort Venango farther toward the south.

*Problem III. How the triumph of the British in the Seven Years' War affected the future of North America*

**The Seven Years' War.** The French built a strong fort at the point where the Allegheny and Monongahela rivers unite to form the Ohio. This was named Fort Duquesne, and it was here that the British and colonial troops, under General Braddock, met their first great defeat in the Seven Years' War (Fig. 3). The French continued to win victories during the next two years. Their famous general, the Marquis de Montcalm, took Fort William Henry at the southern end of Lake George and captured Oswego. In this hour of gloom England turned to the man who was to give her victories in place of defeat. William Pitt was made prime minister, and under his direction Great Britain sent large armies and fleets to North America.

Pitt was not content merely to fight a defensive war; he was determined to drive the French from the entire continent.

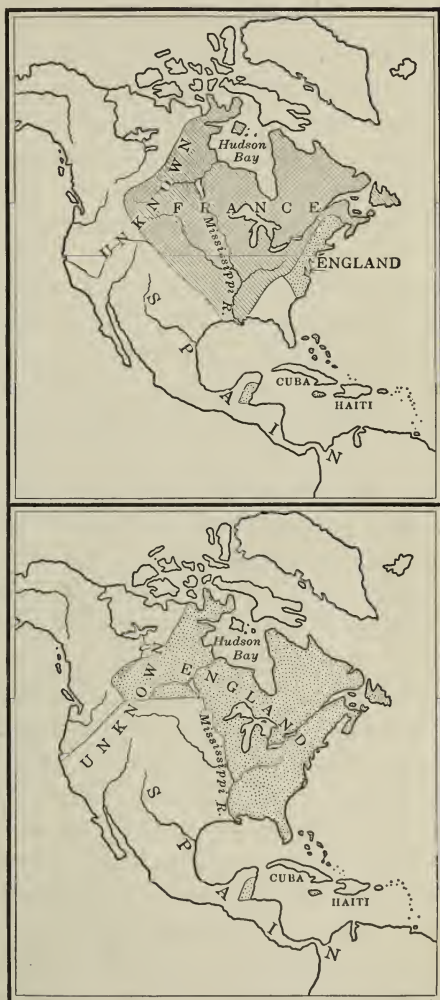


FIG. 4. North America before and after the French and Indian War

The British soon recaptured Fort Duquesne and named it Fort Pitt; they seized the fortress of Louisburg, which guarded the entrance to the St. Lawrence; and finally the brave General Wolfe led his army to a great victory before the walls of Quebec (1759). The surrender of this stronghold, and of Montreal in the following year, completed the defeat of the French. By the Treaty of Paris, signed in 1763, France ceded to Great Britain not only Canada, but all of the disputed territory between the Appalachians and the Mississippi (Fig. 4). At the same time, France made a secret agreement with Spain by which she gave her New Orleans, together with all the territory known as Louisiana stretching westward from the Mississippi River to the Rocky Mountains.

**Results of the war.** The Treaty of Paris left Great Britain the greatest of maritime and colonial powers. Portugal and Holland, her earlier rivals, had long since fallen hopelessly behind, and by this treaty France and Spain were swept from her path. Great Britain was now mistress of the seas, and all the world was open to her merchants, explorers, and colonists. To the English colonists the treaty meant that the whole interior of the continent was thrown open to the growing population which had been confined to the Atlantic side of the Appalachian barrier. It meant, too, the removal of the menace of French power toward the north, leaving the colonies less dependent upon Great Britain for defense against a common foe. It was settled that Anglo-Saxon ideals and institutions were to prevail throughout North America, and to the colonists this was the most important result of the war. The government of New France was a despotic and paternal government, with all of its powers proceeding from the king. There was no trial by jury, there were no town meetings, no representative assemblies to help make the laws. Had France won the war, her system of colonial government would have been extended over the greater part of the continent. It would have been impossible for the English colonists, in their narrow space along the Atlantic coast, to develop into the great nation of today whose ideals have always been those of liberty and self-government.



*Problem IV. How the victories of George Rogers Clark influenced the western boundary of the new nation*

**The American Revolution.** The liberty-loving colonists who came to America were not content to remain under the permanent rule of Great Britain. The American Revolution began in 1775; it was a war for self-government, which soon became a war for independence. One of the grievances cited in the Declaration of Independence was the fact that Great Britain had annexed the territory west of the Appalachians to the province of Quebec.

Throughout the Revolution the fierce Iroquois tribes in the valley of the Mohawk fought on the side of the British, and terrible was the warfare of these savage allies. Many a sturdy frontiersman had shouldered his musket to join Washington's army, leaving the pioneer settlements almost defenseless. Indians and Loyalists now united in savage raids on the unprotected frontier. The British commander at Detroit, Sir Henry Hamilton, made every effort to unite all the western tribes in a general attack upon our frontier. If the American pioneers could be driven east of the Alleghenies, the vast region between the mountains and the Mississippi would be saved to the British crown.

**George Rogers Clark conquers the Northwest.** The boldest defender of the western frontier was George Rogers Clark, a young Virginian of twenty-five years, and a born leader of men. Clark planned to end the raids and massacres by attacking the real enemy behind the Indians. He determined to drive the British garrisons from the entire Northwest Territory; that is, out of the region between the Ohio River and the Great Lakes. Clark raised a small force of hunters and Indian fighters for his expedition. He embarked his little army on flatboats at a point near Pittsburgh, and floated down the Ohio to the mouth of the Cumberland. Landing his men, Clark made a rapid march of 120 miles across the country to Kaskaskia. On the evening of July 4, 1778, the British garrison at Kaskaskia was surprised and captured. Other towns in southwestern Illinois

now hastened to surrender. Even Vincennes on the Wabash, the most important British post in the Ohio Valley, raised the American flag. Most of the inhabitants of these towns were Frenchmen, who readily accepted American rule when they learned from Clark that France had become our ally. With

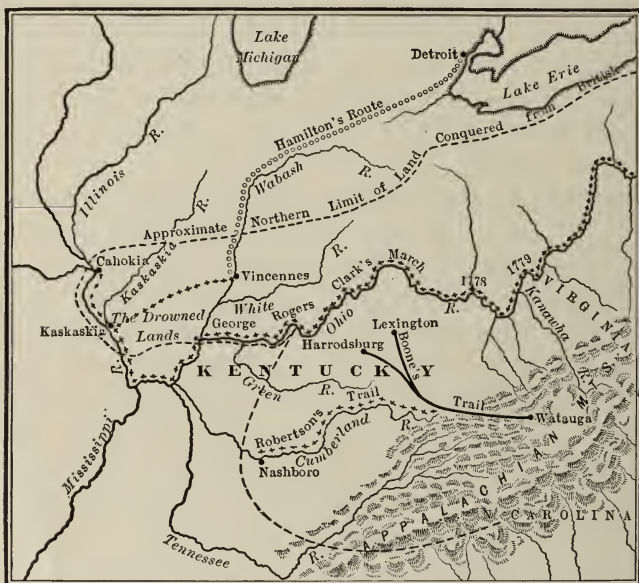


FIG. 5. Clark's campaign

This map shows the scene of Clark's campaign in the West. Note the broken line which shows the approximate limit of land conquered from the British

only 200 men, this intrepid leader wrested from British control a territory nearly as large as the entire thirteen colonies.

The Northwest ceded to the United States. George Rogers Clark won by his victory the proud title of "the conqueror of the Northwest." More than this, he won for his country the Mississippi instead of the Alleghenies as its western boundary; for when the treaty of peace was signed, Great Britain recognized our claim to the western territory of which we held possession. Thus Clark's victories opened the way for the march of the American people across the continent.



the Ohio River. There was no way to settle the dispute unless these states should agree to cede their claims to the United States government. This was finally done, and so the Northwest Territory became part of the public domain; that is, it



FIG. 7. Ohio land grants and surveys. (From Randall and Ryan's "History of Ohio")

was held in trust by the United States for the benefit of all the people. When lands were sold the proceeds went into the national treasury and were used for government expenses.

Lands reserved by Virginia and Connecticut. When Virginia ceded her claims in the Northwest she kept back or "reserved" that part of Ohio lying between the Little Miami and Scioto



rivers. This region was reserved for the payment of bounties promised by Virginia to her officers and soldiers who had served in the Revolutionary War (Fig. 6). It was called the Virginia Military District of Ohio, and embraced 4,500,000 acres of land (see Fig. 7). Connecticut also reserved a part of the territory which she claimed. This "Western Reserve" kept by Connecticut was in northeastern Ohio, and comprised about 3,366,000 acres. Several Connecticut towns had been captured by the British during the Revolution, and many homes were burned. So Connecticut gave 500,000 acres of her Ohio lands to the people who had lost their property by the torch of the invader. These "Firelands" were in the western part of the Reserve, embracing the present counties of Huron and Erie. Connecticut sold the remainder of the Western Reserve, and used the proceeds for the support of her public schools.

**Land surveys in the Northwest.** Fortunately for the western settlers, Congress in 1785 adopted a simple and accurate method of survey by which the pioneer could readily locate his farm. The western territory was divided into townships, each six miles square. Each township was then subdivided into thirty-six sections, each one mile square, containing six hundred and forty acres of land. Every township and section was numbered, so that any tract of land could be easily located. Congress reserved the sixteenth section in each township and gave it to the new states for the support of their public schools. Two entire townships in each state (Ohio received three) were also reserved for the support of a university.

*Problem VI. How the Ordinance of 1787 influenced the creation of new states*

**The Ordinance of 1787.** For several years before the Northwest Territory was ceded to the United States, Congress had been considering plans for its government. The plan finally adopted, known as the Ordinance of 1787, was one of the most important laws in our history. It outlined the policy since followed by the national government in dealing with all its

territories. "I doubt," said Daniel Webster, "whether one single law of any lawgiver, ancient or modern, has produced effects of more distinct, marked, and lasting character than the Ordinance of 1787."

The Ordinance provided that for the first few years the Northwest Territory should have a temporary government,

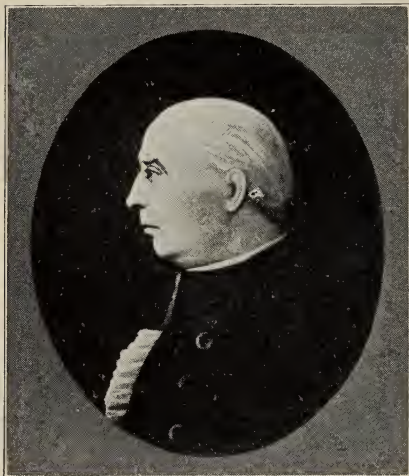


FIG. 8. Rufus Putnam

Rufus Putnam, called the "Founder and Father of Ohio," served with distinction in the French and Indian War, and was one of Washington's most trusted officers in the Revolution. He organized the Ohio Company, and was the leader in the Marietta settlement.

He died at Marietta, Ohio, in 1824

the laws to be made by the governor and three judges appointed by Congress. As the population increased, this temporary government was to be replaced by a representative government. A legislature of two houses was then to be created, the upper house consisting of a council of five members appointed by Congress; while the lower branch was to be chosen for a term of two years by the voters of the territory. Three provisions of the Ordinance were of especial importance. It prohibited slavery in any form; guaranteed religious freedom to all settlers; and declared that

"religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged."

Not more than five nor fewer than three states were to be formed from this region, and statehood was promised as soon as any district had 60,000 inhabitants. Ohio, Indiana, Illinois, Michigan, Wisconsin, and a part of Minnesota are the states which were afterwards formed from the Northwest Territory.

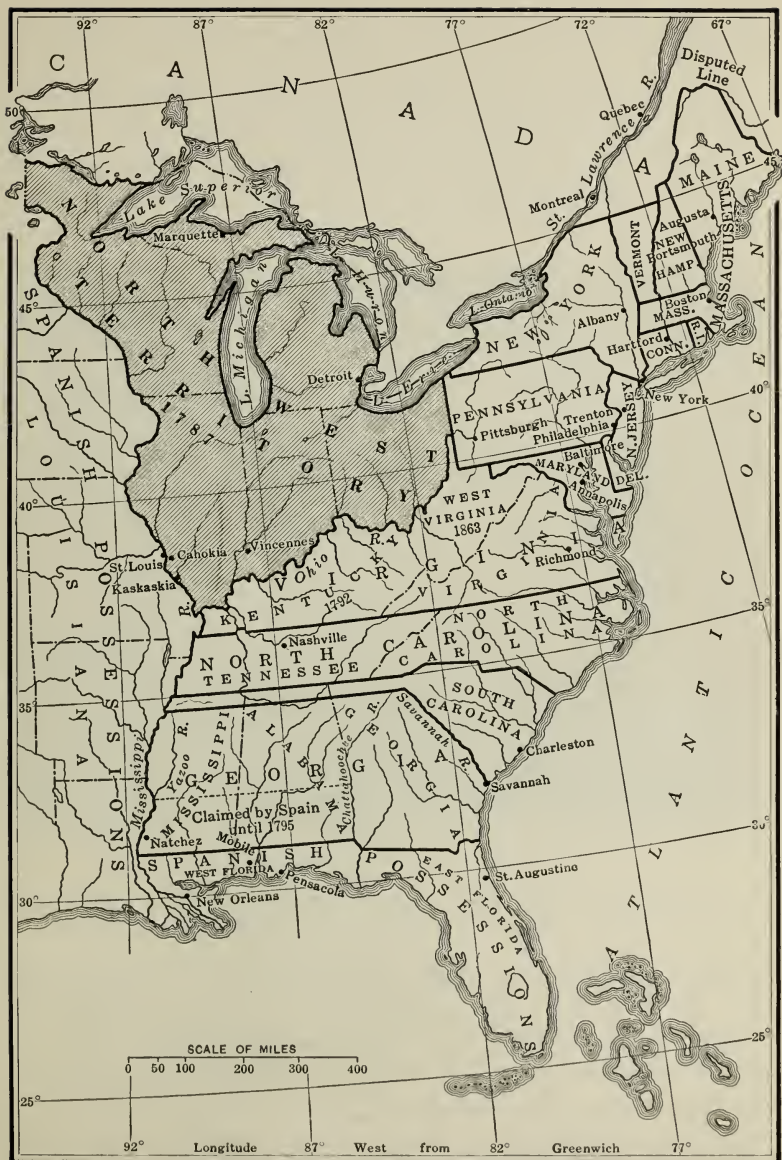


FIG. 9. The Northwest Territory—1787



*Problem VII. How the first settlements in Ohio were made*

**The Ohio Company of Associates.** The little town of Rutland in central Massachusetts is sometimes called the "Cradle of Ohio." After the close of the American Revolution, this village was the home of Rufus Putnam (Fig. 8); and it was in his house, still standing (Fig. 10), that two men sat up all night



FIG. 10. Home of Rufus Putnam

This house was purchased by Rufus Putnam after it had been confiscated from its Tory owner. It is now in charge of the Rufus Putnam Memorial Association

on January 9, 1786, discussing their plans for a colony on the Ohio River. These men were Rufus Putnam and Benjamin Tupper, two of Washington's most trusted officers. When the Revolutionary War ended, Congress was unable to pay the men who had fought so bravely for American liberty, and many of them were left almost penniless. General Putnam and several other officers decided to ask Congress to aid the veterans by a grant of lands in the Ohio country, a project which had the full approval of Washington. Finally, General Putnam and



his friend, Benjamin Tupper, published a notice in the New England papers inviting their late comrades in arms to unite with them in this enterprise. The result was the forming of the Ohio Company of Associates, composed of veterans from Massachusetts, Connecticut, and Rhode Island. Acting as agent for the company, Reverend Manasseh Cutler secured from Congress the grant of nearly 1,000,000 acres of land, located north of the Ohio River on both sides of the Muskingum.

**The journey to Ohio.** It took eight weeks for the first band of settlers to make the journey by wagon from Massachusetts to the headwaters of the Ohio River. They followed Braddock's old military road across Pennsylvania and over the Alleghenies to Sumrill's Ferry, now West Newton, Pennsylvania. Some two months were spent here in building boats, the largest of which was named the *Mayflower*, after the famous ship which brought the Pilgrims to Plymouth. Putnam's resolute band numbered forty-eight men in all, including surveyors, boat-builders, carpenters, smiths, and farmers. Embarking with their stores on April 1, 1788, the little party floated down the Monongahela to the broad bosom of the Ohio. They reached the mouth of the Muskingum on April 7, 1788, and viewed the site of their new homes—an unbroken forest. Friendly Indians belonging to the Wyandot and Delaware tribes welcomed the pioneers as they stepped ashore and began to land their stores and baggage.

**The first settlement at Marietta.** Marietta was the name given to their first settlement, in honor of the French queen, Marie Antoinette. This oldest town in Ohio was situated on a level plain which had once been the site of a fortification built by the Mound Builders. As a defense against the Indians, the settlers built blockhouses of hewn logs and surrounded this fortified square with a stockade (Fig. 11). For several months General Putnam lived in a large tent called a marquee, which had been taken from the British when Burgoyne surrendered at Saratoga. The settlers at once began the work of clearing the land, and during the first season they planted one hundred acres of corn. The soil was fertile, and the game so abundant that

the pioneers celebrated July 4, 1788, with a barbecue at which venison, bear meat, buffalo, and wild turkey were served.

Perhaps no colony in America was ever planted under more favorable auspices, for these Marietta pioneers were the flower of New England's sturdy stock. "I know many of the settlers personally," wrote Washington, "and there never were men better calculated to promote the welfare of a community." On



FIG. 11. The Old Blockhouse, Marietta, Ohio

The Old Blockhouse at Marietta was built in 1788 as a defense against the Indians, and is still standing. It served as a church and school, as well as a fort, and for a time was the home of General Rufus Putnam

his farewell visit to America in 1825, Lafayette spent some pleasant hours with his old comrades at Cincinnati, and at Marietta he visited the little cemetery where others had been laid to rest. "I knew them all," said Lafayette. "I saw them at Brandywine, Yorktown, and Rhode Island; they were the bravest of the brave."

**Governor St. Clair and the first laws.** General Arthur St. Clair, a brave and faithful officer of the Revolution, had been appointed governor of the Northwest Territory (Fig. 12). It was a great day for the new colony when the barge bearing the

governor and two judges arrived at Marietta, which was to be the first capital of the territory. One of the early tasks of the governor, aided by the judges, was to draw up and publish the laws. These provided for a militia to defend the territory, created a system of courts, and named the offenses which were to be punished as crimes. Penalties were severe, as was the case in New England at that time. Even minor offenses were punished by whipping, confinement in the stocks, or binding the offender out at hard labor for a limited time. Governor St. Clair laid out the boundaries of the first county, Washington County, which included most of eastern and southern Ohio.

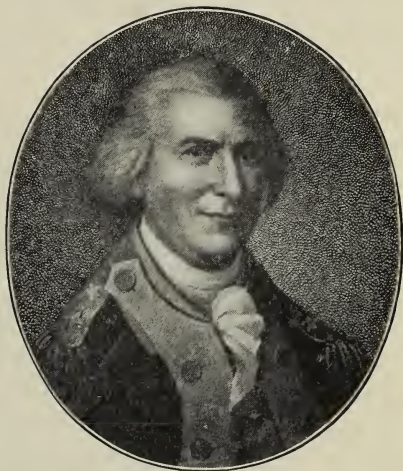


FIG. 12. Arthur St. Clair

#### The westward movement.

Emigration to the West now became very popular. Eastern farmers hastened to sell their homes for what they would bring, in order to begin life anew on the banks of the Muskingum or the

Ohio. Each year hundreds of flatboats loaded with cattle and household goods floated down the Ohio River. One observer said that during the month of April, 1787, fifty flatboats left Fort Pitt; while a resident at Fort Harmar records that within a period of eight months he counted 127 boats, carrying upwards of 2700 people. The little settlement at Marietta grew rapidly; by the year 1790 it had 100 cabins, and branch settlements were planted at Belpré on the Ohio, and at Big Bottom on the Muskingum.

Arthur St. Clair was born in Scotland. He served with the British army in America during the French and Indian War, and afterward settled in Pennsylvania. During the Revolution he was major-general under Washington. From 1789 to 1802 he was governor of the Northwest Territory. He died in poverty and obscurity in 1818. (Portrait from Randall and Ryan's "History of Ohio")



The founding of Cincinnati (December, 1788). The second purchase of Ohio lands was made by John Cleves Symmes of New Jersey and several associates. The Symmes Purchase comprised the tract lying between the Little and the Great Miami River. In the same year that Marietta was founded, three settlements were made in the Symmes Purchase. These

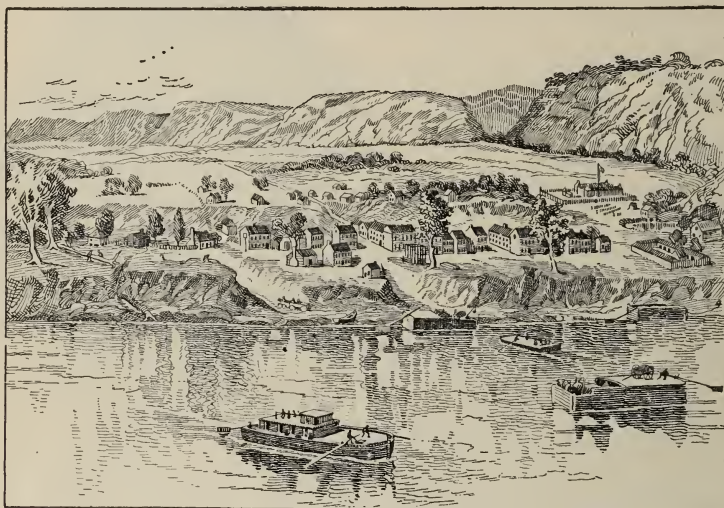


FIG. 13. Cincinnati in 1800

This is the way Cincinnati looked in 1800, twelve years after it was founded

were Columbia, at the mouth of the Little Miami, Losantiville, opposite the mouth of the Licking, and North Bend, on the Ohio River near the Indiana line.

The three leaders in the settlement at Losantiville were Mathias Denman, John Filson, and Robert Patterson. Filson was responsible for the curious name originally given to this settlement, intended to signify the "town opposite the mouth of the Licking." Judge Symmes had made his home at North Bend, and the troops detailed to protect the settlers were first stationed at that point. Later the garrison at Fort Harmer was removed to Losantiville, and the building of Fort Washington gave this settlement a decided advantage over its competitors.



Shortly after the arrival of the garrison from Fort Harmar, Governor St. Clair determined to reside at Losantiville and make it the seat of government for the Northwest. He renamed the settlement Cincinnati, in honor of the Society of the Cincinnati, an organization composed of officers of the Continental Army. The governor now organized Ohio's second county, called Hamilton, which included the territory west of the Muskingum River.

The French colony at Gallipolis. On the Ohio River below Marietta was the ill-fated settlement of Gallipolis, founded in 1790 by six hundred French immigrants. They had been induced to come to Ohio by agents of the Scioto Company, to which Congress granted a large tract of land. Their settlement was doomed to failure for several reasons. The Scioto Company could not give a good title to the lands which they occupied, and the Frenchmen themselves were not prepared for the hardships of pioneer life. Congress finally came to their relief with a grant of 24,000 acres, but when General Rufus Putnam came to Gallipolis to distribute the lands in this "French Grant" he found that only ninety-three persons were present to draw their shares.

*Problem VIII. How the Indian power in Ohio was broken*

Indian tribes of Ohio. At the time of the first settlements, the region known as Ohio was occupied by numerous Indian tribes. In the northwest the Wyandots made their home along the banks of the Maumee and Sandusky rivers; the Shawnees were in the south-central region on both sides of the Scioto River; the Miamis occupied the valleys of the two rivers named for their tribe; the Mingoes (the word means "stealthy" or "treacherous") were in the southeastern section, between the Muskingum and the Ohio. Scattered among these tribes lived fragments of many others, as the Delawares, Ottawas, and Chippewas.

Many of these Ohio Indians belonged to the Algonquin family, which had been conquered and driven westward and northward

by the fierce Iroquois; other tribes, like the Mingoes and Wyandots, were of Iroquois stock, but not admitted to membership in the "Long House," or Iroquois confederacy. The five Iroquois tribes belonging to the Long House lived in New York and northeastern Pennsylvania. At various times they had



FIG. 14. Simon Kenton

Simon Kenton, Ohio's pioneer hero, whose exploits rival those of Daniel Boone, served as scout in the expeditions of Dunmore, Clark, and Wayne. His body rests in the cemetery at Urbana, Ohio, where a monument marks his grave. (After an illustration in Randall and Ryan's "History of Ohio")

fought with and conquered the Indian tribes of Ohio, hence the Iroquois claimed all of this region as part of their hunting-grounds. Practically all of the Ohio tribes denied this claim; only the peace-loving Delawares acknowledged the Iroquois as their masters and paid them tribute.

The Indians and the white settlers. When Marietta was founded, the total number of Indians living in Ohio was probably about 15,000, of whom 3000 were fighting braves. They lived chiefly by hunting and fishing, but also cultivated fields of maize or corn. The Indians resented the coming of the white settlers, who wished to convert their hunting-

grounds into farms. So the early history of the Northwest Territory is the story of the desperate warfare waged by the Indian in defense of his wigwam and hunting-grounds. It is a story filled with thrilling incidents. It tells of sudden ambushes and bloody massacres in which the Indians were led by such renowned warriors as Little Turtle, chief of the Miamis, or Tecumseh of the Shawnees; it narrates the exploits of the Girty brothers,—George, James, and Simon,—three renegade white

men who lived with the Indians and led them in attacks on the settlements; it is the story of the capture and thrilling escape of those famous Indian fighters, Daniel Boone and Simon Kenton (Fig. 14), and of the death at the stake of the brave William Crawford; it tells of the heroism of Betty Zane, the young girl who saved the Wheeling garrison from massacre by carrying in a supply of powder as the Indians fired upon her. In a word, this early history is the account of the pioneers who conquered the savages as they conquered the wilderness, by a slow, steady, and resolute advance.

**Expeditions of Harmar and St. Clair.** Soon after the first settlements were established in the Northwest Territory, the Indians formed a confederation for the purpose of destroying the new towns and driving the white men beyond the Ohio. It took three armies, each numbering about 1500 men, to defeat the Indians and make the Ohio country safe for settlers. General Harmar commanded the first expedition, which moved northward from Fort Washington against the Miami Indians at the head of the Wabash (1790). Harmar's troops were drawn into an ambushade, and the survivors retreated to the Ohio River.

A second expedition under General St. Clair met with even greater disaster (1791). His army was poorly equipped and disciplined, and badly led. In spite of Washington's warning, "Beware of a surprise," St. Clair fell into an ambush on the banks of the Wabash River, in Mercer County. The Indians under Little Turtle gained one of the greatest victories they had ever won over the white man. Within the space of a few hours nearly all of St. Clair's men lay dead or wounded on the field, and the few survivors were in headlong flight.

**Anthony Wayne and his victory.** The Indians were elated by their successive victories, and it now became a question of defeating them or abandoning the western settlements. For the leader of his third expedition Washington chose Anthony Wayne, nicknamed "Mad Anthony" for his impetuous valor in the American Revolution (Fig. 15). Wayne now showed that he was prudent as well as brave; instead of advancing at once, he

drilled his army for six months in a camp near Pittsburgh. He taught his men to shoot at the mark while they were on the run, and only after every man could hit the target at thirty paces, while running, was Wayne ready to lead them against the Indians.

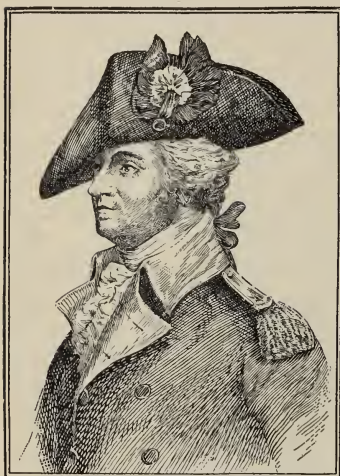


FIG. 15. Anthony Wayne

Anthony Wayne, one of the ablest officers in Washington's army, displayed heroic valor at Stony Point where he captured the British garrison of 600 men with the loss of only 15 men killed. After St. Clair's disaster, Washington appointed Wayne to command the expedition which defeated the Indians in the battle of Fallen Timbers (August 20, 1794)

the thirteen confederated tribes signed the treaty of Greenville (Fig. 16), ceding nearly two thirds of their lands in Ohio (1795).

**Later cessions of Indian lands.** Later treaties made during the period from 1805 to 1817 released nearly all the remainder of the state, as one by one the Indian tribes exchanged their lands for reservations west of the Mississippi River. The Wyandots were the last to go; and in 1843 the remnant of this once powerful tribe, reduced to about eight hundred members,

General Wayne showed the same prudence in marching his army northward by slow stages, building forts as he went. One of these was at Greenville, in Darke County; another was Fort Recovery, on the field of St. Clair's defeat in Mercer County; a third was Fort Defiance, at the junction of the Auglaize and Maumee rivers. Still pressing northward, Wayne finally encountered the Indians on the west bank of the Maumee River, just above the present town of Maumee. The fight which ensued, known as the battle of Fallen Timbers, forever broke the power of the Indians in Ohio. "Wayne," said the Indians, "we cannot surprise, for he is a chief who never sleeps." Crushed by their defeat, representatives of



gave up its reservation lying near Upper Sandusky and moved to a reservation west of the Mississippi River.

**Surrender of the northwestern forts.** At the time of Wayne's victory, British garrisons still held Detroit, Oswego, Niagara, and other northwestern posts which under the treaty of 1783 belonged to the United States. Great Britain's excuse for holding the posts was that the debts due to British subjects before the war had not been paid as the treaty required. The officers in command of these posts aided the Indians in their efforts to drive the Americans beyond the Ohio by supplying them with arms and ammunition. In 1794 the lieutenant-governor of Canada even built a fort on the Maumee where Perrysburg now stands. The frontiersmen talked of another war with Great Britain, but wiser counsel prevailed. By a new treaty signed in 1794, Great Britain agreed to surrender the northwestern posts. In return, the United



FIG. 16. The Greenville Treaty

This shows the first section of the Greenville Treaty, which bears the signature of Anthony Wayne and the Wyandot chiefs. Each Indian who signed drew opposite his name the totem of his tribe or clan. The original of this treaty is in the Library of Congress; a duplicate copy is in the Museum of the Greenville Historical Society. (Illustration from Randall and Ryan's "History of Ohio")

States promised to pay the debts due to British subjects at the beginning of the Revolution. On July 11, 1796, the British garrison evacuated Detroit, and a small force of American troops marched in and took possession. The Stars and Stripes now floated for the first time over the entire Northwest Territory.

**The Mound Builders in Ohio.** The Indians who contended with the early pioneers were not the original inhabitants of the state. Scattered over the southern part of Ohio, and throughout the entire Mississippi Valley, are thousands of peculiar mounds and earthworks. These ancient remains indicate that an intelligent and numerous race occupied the region for thousands of years before the Indians were found there. The mounds were sometimes raised embankments, sometimes square or circular

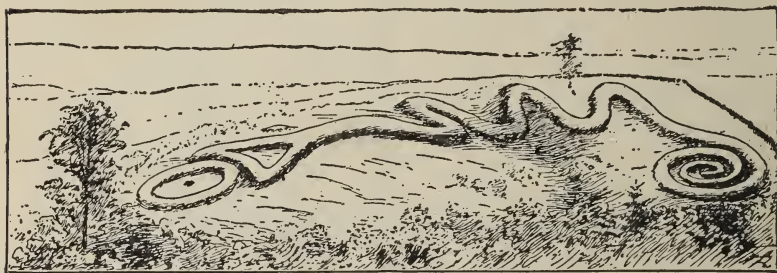


FIG. 17. Serpent Mound in Adams County

This remarkable work of the Mound Builders is built in the form of a great serpent extending 1350 feet in length, with a large oval mound representing an egg lying between its distended jaws. The worship of the serpent has been characteristic of many primitive peoples, and this was evidently true of the Mound Builders. (Illustration from Randall and Ryan's "History of Ohio")

inclosures, and sometimes earthworks made to resemble some animal, like the immense Serpent Mound in Adams County (Fig. 17). Apparently they were intended for different purposes: some were fortifications (Fig. 19) and observation points (Fig. 18), some were burying-places, and others may have served as places of worship. The people who built these mounds were farther advanced in civilization than the Indians. They had better methods of agriculture, they dug canals, they opened the ground and discovered metals which were shaped into tools, vessels, and ornaments.

Some writers have thought that the Mound Builders must have been a race distinct from the more warlike Indians, by whom they were afterwards defeated and overwhelmed. The more recent opinion is that the Mound Builders were not a



FIG. 18. Old Indian Mound, Miamisburg, Montgomery County

This old Indian mound is one of the largest of its kind in the world. It is 100 feet in height and 250 feet in diameter at the base. Excavations show that it was not a burial mound but that it was probably used as a signal station. It is located on a high hill, from which one can see for miles in every direction



FIG. 19. Fort Ancient, Warren County

Fort Ancient is the largest fortification built by the Mound Builders in North America. This fort, or group of three forts, is located on a high bluff overlooking the valley of the Little Miami River. The area of land inclosed is 130 acres. It is thought that this fortification protected an ancient village, since excavators have found here thousands of relics of a primitive race, including stone graves, skulls, bits of pottery, hammer and grinding stones, flint knives, spear and arrow heads. (After an illustration in Randall and Ryan's "History of Ohio")

distinct race, but were the ancestors of the Indians themselves. The red man whom the pioneers found in Ohio had no record or tradition of an earlier race, and so the real story of the mounds remains as much of a mystery as ever.

*Problem IX. Why the westward movement steadily increased*

How the first settlers came to Ohio. Wayne's victory over the Indians meant peace on the northwestern frontier; it meant also a rapid increase in the number of immigrants to Ohio, especially from New England and Virginia. Settlers from the East usually built arks or flatboats at Pittsburgh, in which they floated down the Ohio to their destination. At the end of the voyage the boat was broken up, and the lumber used in building the cabin or barn. The newcomer was always certain of a hospitable welcome from the older settlers. No cabin was too small to shelter the guest; a quilt would be hung at night so as to divide the single cabin room, while the children were tucked away in the loft overhead.

Early pioneer life. As soon as the new settler had located his farm, a day was set by his future neighbors for the house-raising. On the day appointed all the men from the surrounding country came to help build the log cabin. The first day was spent in felling trees and splitting the logs, the second was devoted to the house-raising, and on the third day the owner for whom all this was done gave a "house-warming." So while pioneer life was filled with privation and toil, this spirit of mutual helpfulness and good will gave it a charm of its own. At the harvestings, the huskings, and the quiltings, as at the house-raising, the neighbors came in to help. Or if any settler was sick, or short-handed when his crops needed care, his neighbors promptly came to his aid.

Public land sales. The peopling of Ohio was aided by a new land policy. At first the public lands were sold only in large tracts to companies or speculators, from whom the pioneers had to purchase their farms. William Henry Harrison, delegate from the Northwest Territory in the House of Representatives,



persuaded Congress to adopt a better method. Beginning in 1795, the government sold public lands direct to settlers in smaller tracts, and in a short time 200,000 acres of Ohio land were sold at the government land office in Pittsburgh. Soon afterwards public land offices were opened at Cincinnati, Chillicothe, Marietta, and Steubenville (Fig. 20). Here the

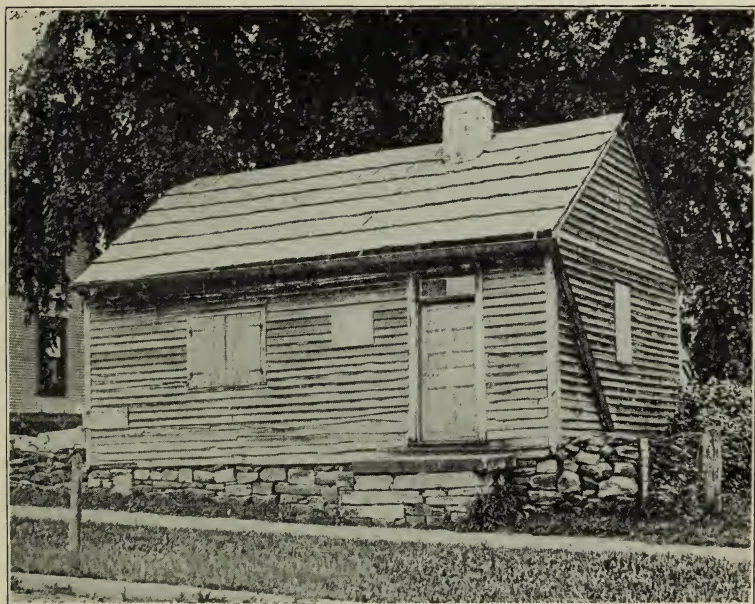


FIG. 20. Office of the Ohio Company, Marietta, Ohio

This is the oldest building in the state. It was erected in 1788 and served as a land office for the sale of thousands of acres of Ohio land

settler could purchase a section (six hundred and forty acres) or a half-section, paying two dollars an acre, only one fourth of which had to be paid in cash.

**Old Ohio towns.** The result was a constant swelling of the tide of migration which was pouring into Ohio. Several new towns were formed north of the first settlements at Marietta and Cincinnati. The earliest of these were Dayton and Chillicothe, both established in 1796. Dayton was laid out by a trio

of Revolutionary generals—St. Clair, Wilkinson, and Dayton, the last of whom was honored by having the site named for him.

In the same year Nathaniel Massie led a party of Kentucky emigrants, seeking for new homes on free soil, into the interior

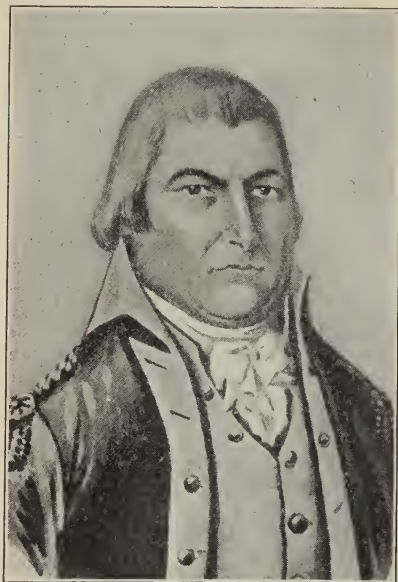


FIG. 21. Moses Cleaveland

Moses Cleaveland was born in Connecticut. He graduated from Yale University, and served in the Continental Army as a captain of engineers. When the Connecticut Land Company purchased Connecticut's share of the Western Reserve, Cleaveland was appointed to make the survey. On July 22, 1796, he decided upon the site for the city of Cleveland on the shore of Lake Erie, at the mouth of the Cuyahoga River

of the Virginia Military District. They selected a beautiful site near the junction of Paint Creek with the Scioto, and laid out the town of Chillicothe. Many Virginians came to this settlement, including Edward Tiffin, Thomas Worthington, and Robert Lucas, each of whom later served as governor of Ohio. Zanesville on the Muskingum was founded in 1799, and named for an enterprising pioneer, Colonel Ebenezer Zane. New Lancaster on the Hocking was settled in 1800 by thrifty German settlers from Pennsylvania.

The first settlement within the limits of the Western Reserve was made when Moses Cleaveland (Fig. 21), a Connecticut lawyer, led a company of fifty settlers to the mouth of Conneaut

Creek (July 4, 1796). From this point the surveyors in his party went up the lake shore to the Cuyahoga River, reaching a site which had long served as a depot for Detroit and Pittsburgh traders. Here Cleaveland's surveyors laid out the town destined to become Ohio's largest city. It was named in honor of its founder, and it is said that the dropping of the letter "a"

from the name was necessary to fit the headline of the little sheet on which the first Cleveland newspaper was printed.

**First legislature in the Northwest Territory.** A census of the Northwest Territory taken in 1798 gave a population of 5000 white male inhabitants of full age. Under the terms of the Ordinance of 1787, the territory was therefore entitled to elect members of a legislature. By this time nine counties

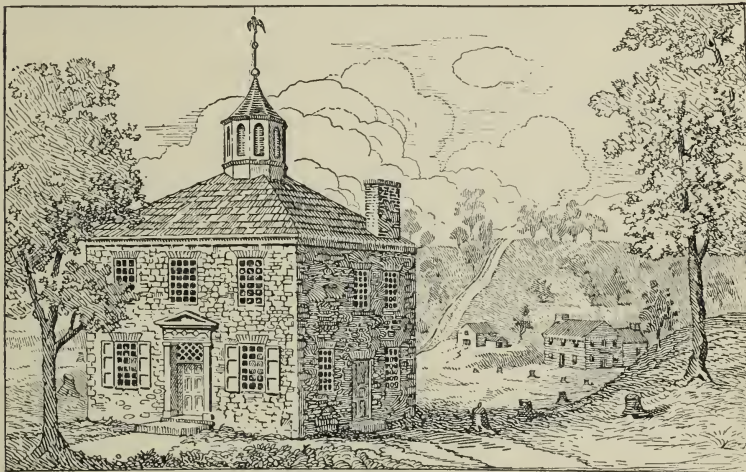


FIG. 22. The first State House at Chillicothe

This was the first public edifice built of stone in the Northwest Territory. Here the territorial legislature met in 1801, and the first Constitutional Convention in 1802. The state legislature held its sessions here from 1802 until 1810, while Chillicothe was the capital of Ohio. (After an illustration in Randall and Ryan's "History of Ohio")

had been created, and the voters were called upon to elect representatives. In all, twenty-two representatives were chosen to form the lower house of the legislature, which met at Cincinnati in 1790. One of its first acts was to elect William Henry Harrison as delegate to the House of Representatives at Washington. The assembly rejected a petition from several Virginians who asked permission to bring slaves with them into the Virginia Military District. It was voted that this request was contrary to the Ordinance of 1787, which forbade slavery in the territory or in the states formed from it.



Congress divides the Northwest Territory. In 1800 Congress passed an act dividing the Northwest Territory into two parts. A line was drawn from a point on the Ohio River opposite the mouth of the Kentucky to Fort Recovery in Mercer County, thence due north to the Canadian boundary. The region west of this line was to be Indiana Territory, with its capital at Vincennes, while the eastern section continued to be called the Northwest Territory, with its capital changed to Chillicothe.

### TOPICS FOR SPECIAL REPORTS

1. **La Salle and his Explorations.** CHANNING, E., and LANSING, M. F., *Story of the Great Lakes*, ch. VI; FISKE, JOHN, *Discovery of America*, II, pp. 532-537; GORDY, W. F., *Stories of Early American History*, ch. XIX; HALSEY, F. W., *Great Epochs in American History*, I, pp. 199-206; PARKMAN, FRANCIS, *Struggle for a Continent*, pp. 186-222; RANDALL and RYAN, *History of Ohio*, I, pp. 109-132.

2. **The Struggle between France and Great Britain.** BALDWIN, J., *Conquest of the Old Northwest*, pp. 1-149; GORDY, W. F., *Stories of Early American History*, ch. XXII; HART, A. B., Editor, *American Patriots and Statesmen*, I, pp. 224-226; JOHNSON, W. H., *French Pathfinders in North America*, chs. VIII-IX; LONG, A. W., *American Patriotic Prose*, pp. 30-33; PARKMAN, FRANCIS, *Struggle for a Continent*, pp. 301-459; RANDALL and RYAN, *History of Ohio*, I, pp. 278-378.

3. **Washington's Journey on the Ohio River.** RANDALL and RYAN, *History of Ohio*, I, pp. 479-495.

4. **How the Northwest was won by George Rogers Clark.** BALDWIN, JAMES, *Conquest of the Old Northwest*, pp. 145-178; BARSTOW, C. L., *The Westward Movement* (Century Readings), pp. 61-68; DRAKE, S. A., *The Making of the Ohio Valley States*, pp. 116-121; HALSEY, F. W., *Great Epochs in American History*, III, pp. 188-195; RANDALL and RYAN, *History of Ohio*, II, pp. 189-214.

5. **How the Northwest Territory was Organized.** BALDWIN, JAMES, *Conquest of the Old Northwest*, pp. 179-186; RANDALL and RYAN, *History of Ohio*, II, pp. 403-424; SPARKS, E. E., *Expansion of the American People*, chs. III, X.

6. **The Ordinance of 1787.** RANDALL and RYAN, *History of Ohio*, II, pp. 425-438.

7. **What was accomplished by the Ohio Company of Associates.** RANDALL and RYAN, *History of Ohio*, II, pp. 439-470.

8. **Pioneer Life in the Ohio Country.** BALDWIN, JAMES, *Conquest of the Old Northwest*, pp. 187-194; SPARKS, E. E., *Expansion of the American People*, chs. XI-XIII.



9. **Indian Tribes of Ohio.** RANDALL and RYAN, *History of Ohio*, I, pp. 155-182.

10. **Daniel Boone.** BARSTOW, C. L., *The Westward Movement* (Century Readings), pp. 75-80; BRUCE, H. A., *Daniel Boone and the Wilderness Road*; BRUCE, H. A., *Romance of American Expansion*, ch. I.

11. **Simon Kenton.** RANDALL and RYAN, *History of Ohio*, II, pp. 231-252.

12. **Battle of Fallen Timbers, and the Greenville Treaty.** RANDALL and RYAN, *History of Ohio*, II, pp. 537-572.

13. **Settlement of the Western Reserve.** RANDALL and RYAN, *History of Ohio*, II, pp. 573-600.

## CHAPTER II

### THE MAKING OF A GREAT STATE (1803-1850)

#### *Problem I. How Ohio became a state in the Union*

Ohio becomes a state. The Northwest Territory now had 60,000 inhabitants and was therefore entitled to statehood according to the promise made in the Ordinance of 1787. Moreover, President Jefferson was eager to have this region become a state, for he believed that he could count on receiving its vote in the coming presidential election. So in 1802 Congress authorized the voters in that part of the Northwest Territory south of Michigan to elect delegates to a convention for the purpose of forming a state constitution. The convention met at Chillicothe on November 1, 1802 (Fig. 22), and prepared a constitution within the month. Congress passed an act recognizing the existence of the new state of Ohio, which entered the Union as the seventeenth state on March 1, 1803.

**The first state constitution.** This first Ohio constitution was patterned after the constitutions of the older states. There was a bill of rights, intended to safeguard the liberties of the individual. For example, the bill of rights guarantees freedom of speech and of the press, provides for the impartial trial of persons accused of crime, and prohibits any law interfering with religious freedom. The constitution established the usual three departments of government. The legislature, or General Assembly, was to consist of two houses, executive power was vested in a governor, and judicial power was exercised by a supreme court and certain lower courts.

The powers of the General Assembly were large. It appointed most of the state officers, including the judges, and the measures which it passed could not be vetoed by the governor. This situation was the result of the disputes which had taken

place between Governor St. Clair and the legislature of the territory. During the fourteen years of his governorship, St. Clair proved himself an upright and capable executive, but he was sometimes arbitrary and inclined to rule with a high hand. So the delegates who drew up the state constitution were determined that the state governor should not be able to defeat the popular will. By making the governor a mere figurehead, the constitution made him almost as powerless for good as for ill. But in spite of its defects, this first constitution served the state for nearly fifty years.

Organizing the state government. The first General Assembly under the new constitution met at Chillicothe on March 1, 1803. On counting the votes for governor, it was found that Edward Tiffin had been elected to that office (Fig. 23). For judges of the supreme court of the state, the General Assembly elected Return J. Meigs, Samuel Huntington, and William Spriggs. Ohio's first United States Senators were Thomas Worthington and John Smith; her first member of the House of Representatives was Jeremiah Morrow.

The great seal of Ohio. One of the first laws passed by the General Assembly prescribed the duties of the secretary of state and made provision for a state seal in these words: "The

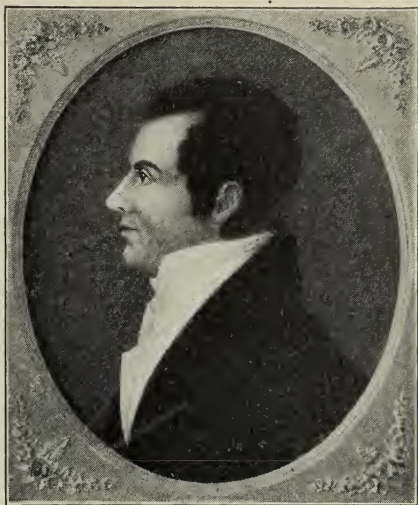


FIG. 23. Edward Tiffin

Edward Tiffin was a graduate of the University of Pennsylvania. He was trained both in medicine and in law. In 1798 he came to the Chillicothe settlement from Virginia, and probably no other man played so large a part in molding the destiny of early Ohio. Tiffin served as representative in the territorial legislature, and as president of the first Constitutional Convention. He was elected the first governor of Ohio in 1803, and reelected in 1805. Afterwards he represented Ohio in the United States Senate

secretary of state shall procure a seal, one inch and a half in diameter, for the use of each and every county now or hereafter to be created, on which shall appear the following device: on the right side, near the bottom, a sheaf of wheat, and on the left a bundle of seventeen arrows, both standing erect in the



FIG. 24. The oldest house in Dayton, Ohio

This house was built in 1796, and first served as a residence. It afterwards served at various times as a church, tavern, store, courthouse, and jail. It is now in the charge of the Dayton Historical Society, and is used as a museum for the historical relics of Montgomery County

foreground, and rising above the sheaf and arrows a mountain, over which shall appear a rising sun. The State Seal to be surrounded by these words: The Great Seal of the State of Ohio." It is said that the mountains depicted on the seal represent the Mount Logan range, opposite Chillicothe.

*Problem II. How the steamboat helped develop the West*

**Ohio and the Louisiana Purchase.** In the same year that Ohio became a state, the United States purchased the territory of Louisiana, including New Orleans and all the region between



the Mississippi River and the Rocky Mountains. This purchase was of great benefit to the settlers in Ohio and to the western pioneers in general. The only outlet for the products of the western farms was by means of barges down the Mississippi to New Orleans, and if this port continued to be owned by a foreign power it might be closed to this trade at any time. So the men of the frontier rejoiced when they learned that the whole Mississippi Valley had come under the American flag. Henceforth the great waterway, with its natural outlet to the Gulf, would be a free channel for the transportation of their products.

**River trade with New Orleans.** This transportation was slow and costly. It took six months for the heavy barges and keel boats to make the round trip from the Ohio River to New Orleans, so that the value of the cargo was eaten up by the cost of transporting it. But in 1803 sail barges were built for the New Orleans trade, carrying from fifty to one hundred tons each, and this improvement reduced the charges for freight.

**First steamboat on the Ohio River.** Soon afterwards came an invention which proved of utmost importance in promoting the growth of the West (Fig. 25). In 1807 Robert Fulton's steamboat, the *Clermont*, made its successful voyage on the Hudson River. Four years later the first steamboat appeared on the Ohio. This was the *New Orleans*, a side-wheeler built at Pittsburgh to navigate the western waters. When the *New Orleans* reached Cincinnati, several visitors came on board. They told the captain, Nicholas J. Roosevelt: "Your boat may go down to New Orleans, but it is absurd to think that it can ever come up the river, moving against the current." To show his visitors what the steamboat could do, Captain Roosevelt ran his boat up the river for several miles, then continued on his voyage to New Orleans.

**The growth of western trade.** Other steamboats were soon constructed, the first on Lake Erie being the *Walk-in-the-Water*, which made the voyage from Buffalo to Detroit in 1818. The great network of western rivers and lakes was soon covered with steam-driven craft that could defy wind and current.

The cumbersome flatboat made the trip from Louisville to New Orleans in from thirty to forty days, while the return trip against the swift current took at least ninety days. The steamboat with its powerful paddle wheels made the trip down the river in seven days, the return trip in sixteen days.

Even in the days of the flatboat the trade on the Mississippi and its tributaries was large; with the coming of the steamboat



FIG. 25. One of the early river steamboats

that trade increased by leaps and bounds. Towns like Pittsburgh, Cincinnati, St. Louis, and above all New Orleans, grew steadily in population. By 1825 the steamboat had passed all competitors and was carrying sixty per cent of the freight to New Orleans. The spread of the cotton region in the Southwest increased the demand for food products just at the time when the steamboat made it possible for the West to supply this demand. Thus by giving the frontier settlers access to the markets of the South and the East, the steamboat aided the development of the entire western country.

**The state capitals.** Chillicothe had been chosen as the capital of the Northwest Territory in 1800, and the capital remained there until 1810, seven years after Ohio became a state. Zanesville then became the seat of the state government. In this same year the legislature accepted a proposition made by the

owners of lands on the east bank of the Scioto River, opposite the town of Franklinton. These men offered to donate lands for a State House Square and a penitentiary on condition that the capital should be moved to this site not later than 1817,

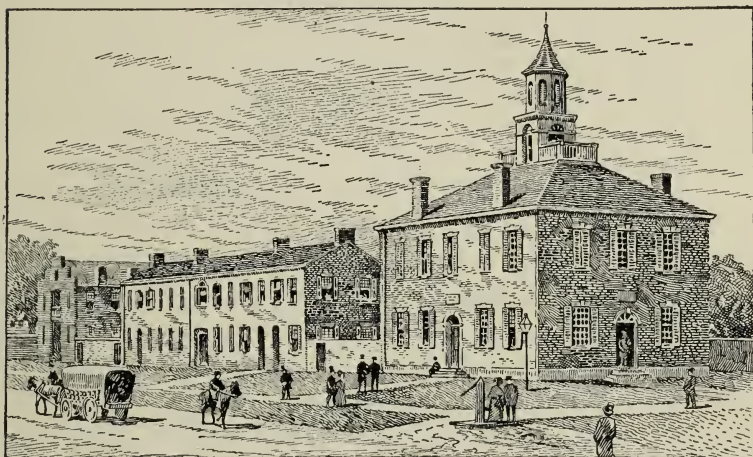


FIG. 26. The first state buildings at Columbus, Ohio

The State House, at the right, was a brick building. The legislature met here until the building was destroyed by fire in 1852. At the left is the building which was occupied by the Secretary of State, the State Auditor, and the Treasurer of State until 1857, when it was torn down to make room for the present State House. (After an illustration from Randall and Ryan's "History of Ohio")

and that it should not be changed before 1840. The offer was accepted, and in 1816 the city of Columbus—named in honor of the discoverer of America—became the permanent capital of Ohio (Fig. 26).

### *Problem III. Why Ohio was an important theater of the War of 1812*

The War of 1812. The year 1812 found the United States again at war with Great Britain. This war was the direct outcome of Great Britain's struggle against Napoleon, then ruler of France. In enforcing the blockade against French ports, British warships captured hundreds of American merchantmen.

Even worse than the capture of our ships was the seizure of American sailors. The British navy made a practice of searching our merchant vessels on the high seas, and seizing men claimed as deserters or as British subjects. These were real grievances, but there was also an imaginary one which increased the bitter feeling toward Great Britain. The Indians were attacking the settlers on our northwestern frontier, and the frontiersmen declared that the British government was urging them on. This accusation was not true, but the country believed it.

In response to the popular demand, Congress finally declared war against Great Britain (June 18, 1812). In most respects the United States was unprepared for the struggle. Our regular army numbered less than 7000 men, scattered along the frontier posts. The chief officers were Revolutionary veterans, old men no longer competent to lead armies. In our favor was the fact that Great Britain was engaged in a mighty combat with Napoleon, which would prevent her from sending large armies to America.

**General Hull surrenders Detroit.** The geographical position of Ohio and its nearness to Canada made it certain that much of the fighting would be within or near the borders of this state. When Governor Meigs called for 1200 militia, more men offered their services than could be accepted. Three Ohio regiments were assembled at Dayton under the command of General William Hull, an old Revolutionary veteran whose best fighting days were over. General Hull was ordered to occupy Detroit, so that this place might serve as a stronghold for the defense of our frontier and as a base for the invasion of Canada. The lack of good roads made the march a difficult one, but Hull's expedition worked its way northward to the present site of Toledo, then on to Detroit.

The Americans numbered 2000 men, a larger force than the combined British and Indian army by which Hull was soon besieged. The British commander now played upon the fears of the aged American leader. Hull was told that unless he surrendered before the attack began, the Indians could not





FIG. 27. Historic sites of northwestern Ohio. (From Randall and Ryan's "History of Ohio")

be controlled and would show no mercy to prisoners. The American troops were eagerly awaiting the oncoming British when Hull, without consulting his officers, ran up a white flag over the fort. By this shameful surrender all of Hull's army

was lost, together with 2500 rifles and stores of ammunition. The surrender meant that all of Michigan Territory now passed under British control, and that our northwestern frontier was at the mercy of the enemy.

General Harrison takes command. To retrieve Hull's disgrace, General William Henry Harrison, the hero of Tippecanoe, was placed in command of the American forces in the Northwest.

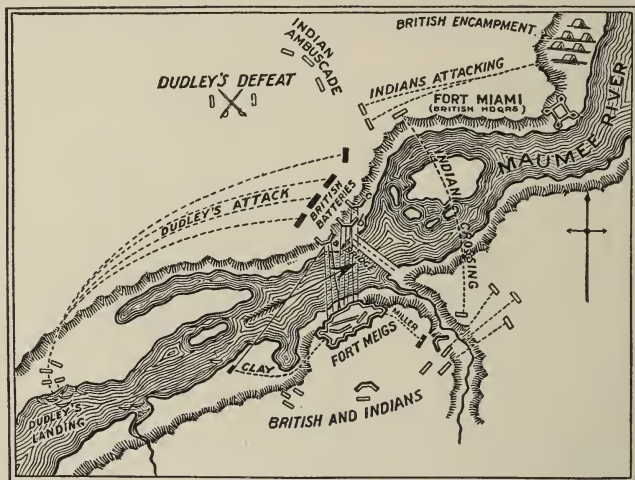


FIG. 28. Fort Meigs

This fort was situated on the east bank of the Maumee River, just above the present site of Perrysburg, Ohio. This position was successfully held by General William H. Harrison against a greatly superior force of British and Indians (April-May, 1813).

(Illustration from Randall and Ryan's "History of Ohio")

Harrison sent one division of his army under General Winchester to the Maumee Rapids, while he led the second division to Upper Sandusky, Ohio. Winchester reached his destination on the Maumee in January, 1813, but instead of remaining there, advanced to the relief of Frenchtown on the Raisin River (now Monroe, Michigan). Here his force of nearly 1000 men was annihilated by the enemy. The British general, Proctor, permitted his Indian allies to massacre the wounded and prisoners. "Remember the Raisin" became the rallying cry of the American frontiersmen for the remainder of the war.

**The defense of Fort Meigs.** Harrison himself arrived at the Maumee River on the day following the disaster at Frenchtown. Just above the present village of Perrysburg he built Fort Meigs, named in honor of the governor of Ohio (Fig. 28). The British laid siege to this stronghold, but the Americans resisted every assault. General Clay with 1200 Kentuckians came to their aid, and a part of his command under Colonel Dudley was ordered to cross the river, capture the enemy's batteries, then retreat to Fort Meigs. Dudley's attack was successful, but his impetuous followers forgot their orders and pursued the Indians into the forest. They were soon surrounded by overwhelming numbers of Tecumseh's warriors, and of 800 Americans who crossed the river only 150 returned. A score of the captured prisoners were scalped before the gates of the British Fort Miami, while Proctor himself looked on. Even this bloodshed did not satisfy Proctor's savage allies, large numbers of whom were deserting. Proctor had promised them the body of General Harrison, but the Indians decided that he had promised more than he could perform. Meantime Harrison held Fort Meigs against every attack, and in May, 1813, Proctor abandoned the siege, retreating toward the north.

**The victory at Fort Stephenson.** About three months later came the attack on Fort Stephenson. This was a small fort on the Sandusky River, where Fremont now stands (Fig. 27). It was held by 160 Kentuckians under the command of Major George Croghan. On learning that Proctor and Tecumseh were on their way to attack Fort Stephenson, Harrison ordered Croghan to abandon the fort. The order came too late to be obeyed, for the little garrison was already surrounded by a force of 1200 British and Indians. Proctor sent a flag of truce demanding Croghan's immediate surrender, with the usual threat of an Indian massacre in case of failure to comply. Croghan sent back the message, "When this garrison surrenders there will be none left to massacre, for it will not be given up while there is a man left to fight." Proctor immediately opened fire with his six-pounders, while the garrison made the best reply it could with its single gun.

The following day the British troops advanced in two columns to storm the fort. They were met by a deadly fire from the rifles of Kentucky's best marksmen. The British fled in panic back to their boats, and sailed down the Sandusky for the safer waters of Lake Erie. This was the most brilliant engagement fought on Ohio soil during the entire war. With the



FIG. 29. The battle of Lake Erie

The original painting of this photograph hangs in the Capitol at Columbus

loss of one man killed and seven wounded, Croghan's heroic band had killed or wounded 150 of the enemy, who outnumbered them seven to one. General Harrison said in his official report: "It will not be among the least of General Proctor's mortifications to find that he has been baffled by a youth who has just passed his twenty-first year. He is, however, a hero worthy of his gallant uncle, George Rogers Clark."

The battle of Lake Erie (1813). Although the victory at Fort Stephenson ended the British invasions of Ohio, the Americans could not hope to recapture Detroit while the enemy held



possession of Lake Erie. But one day in September, 1813, General Harrison received a message which thrilled him with delight. It read: "We have met the enemy, and they are ours. Two ships, two brigs, one schooner, and one sloop." The message was sent by Oliver Hazard Perry; it announced his victory over the British fleet at the battle of Lake Erie. Perry had ten ships under his command, five of which he had built from green timber cut from the banks of Lake Erie. On the morning of September 10, his fleet sailed out from Put in Bay to meet the British squadron. Captain Barclay, who had fought under Nelson at Trafalgar, was his adversary.

The battle raged fiercely for three hours. Leading the American line, Perry's flagship, the *Lawrence*, was at last cut to pieces by the fire from the British ships. Of 103 men on board, all but 20 were shot down. Instead of striking his flag, Perry leaped into a row-boat, and with a few seamen started for the *Niagara*

(Fig. 29). Again and again the *Detroit* fired at this frail target, but the little party reached the *Niagara's* decks without injury. Above his new flagship Perry rehoisted the blue flag which bore Lawrence's dying words, "Don't give up the ship." He then gave the signal for his squadron to close in, and the broadsides from the American guns turned defeat into victory. By three o'clock in the afternoon all six of the British ships had struck their colors. Had it not been for Perry's valor, the Northwest Territory might have remained a British prize of war.



FIG. 30. Tecumseh

Tecumseh, born near Springfield, Ohio, was one of the ablest Indian chiefs of whom we have any record. During the War of 1812, as an invaluable ally of the British, he formed a confederation of the Indian tribes against the white settlers. (Illustration from Randall and Ryan's "History of Ohio")

Perry's victory forced the British troops to abandon Detroit and retreat into Canada. They were closely pursued by Harrison, who routed Proctor's army in the battle of the Thames (1813). Tecumseh (Fig. 30), who had proved such a valuable British ally, was killed, while many of Proctor's men were taken prisoners. This decisive victory put an end to the Indian Confederacy in the Northwest; it also won back Detroit and Michigan Territory, which Hull had lost.

*Problem IV. How the War of 1812 promoted the westward movement*

The westward movement after 1812. The War of 1812 practically destroyed American commerce and caused a period of



FIG. 31. The National or Cumberland Road

severe hard times in all the seaboard states. With the return of peace, a new westward movement began. Farmers in debt and laborers out of work sold out for what they could get, and set out to find new homes along the Great Lakes or on the eastern slope of the Mississippi Valley. Harrison's victory over the Indians at Tippecanoe, followed by the cession of their lands, opened up thousands of fertile acres in Ohio, Indiana, and Illinois to men who had been tilling the stony hillsides of New England. As a result of this tide of migration, Ohio's population increased from 45,000 in 1800 to 581,000 in 1820. In 1800 Ohio ranked eighteenth in population as compared with the other states in the Union; in 1820 she held fifth place, having outstripped in the race all except New York, Virginia, Pennsylvania, and North Carolina.

**Routes leading to Ohio.** Improved means of transportation helped to bring about this rapid development. The first Ohio settlers had to rely on the difficult route across the Alleghenies, thence by flatboat down the Ohio River. So difficult was the journey across the mountains that Congress in 1806 ordered the construction of the National Road, which became the favorite route for the "movers" (Fig. 31). Besides the National Road there were two other principal routes by which settlers moved into Ohio. One of these was the famous Wilderness Road through Tennessee and Kentucky to the Ohio River, where it connected with the trail northward to Lake Erie. A third route, the last to be developed, was the Mohawk Valley trail from New York to Lake Erie.

*Problem V. Why canals and railroads were necessary to Ohio's development*

**Ohio's need for markets.** In spite of her rapid increase in population and the growth in commerce brought about by the steamboat, Ohio was still a poor state in 1820. The entire revenue from taxation was only \$130,000; the value of all the taxable property in the state was only \$50,000,000. Most of the people were engaged in farming, and their products sold at prices which yielded a poor return. Wheat sold at 25 cents a bushel, corn at 12 cents, potatoes at 18 cents; pork brought 2 cents a pound, beef 3 cents, butter 6 cents. The reason for this situation was the lack of a good market for farm produce. Since manufactures were undeveloped, there was no industrial population to purchase farm products. Hence these products had to be shipped to a market outside the state, and lack of transportation facilities made this next to impossible.

**Canals and railroads.** New York solved this same problem by constructing the Erie Canal from Albany to Buffalo. The example of New York was followed by Ohio, which began to construct canals in the same year that the Erie Canal was completed. Two inland waterways were authorized by the Ohio legislature: the Ohio Canal (Fig. 32) from Portsmouth on

the Ohio River to Cleveland on Lake Erie, and the Miami and Erie Canal from Cincinnati to Toledo. Alfred Kelley of Cleveland was the master spirit in the work of planning and constructing these canals, and he gave more than ten years of his life to this important service. For the next thirty years the canals aided the growth of the state, attracting thousands of

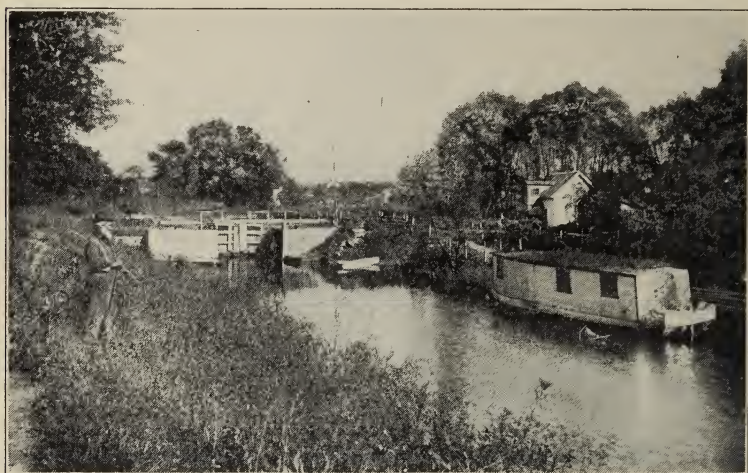


FIG. 32. The Ohio Canal near Lockville, Fairfield County

In the background of this picture is a lock or water-tight inclosure of masonry. When a boat arrives at a lock, the upper gates are first closed, then the lower gates are opened to allow the boat to enter, and are closed behind it. Water is then allowed to enter through the sluices of the upper gates until the water in the lock rises to the level of the upper reach; whereupon the upper gates are opened, and the boat passes out of the lock on the higher level

settlers and providing a market for the products of Ohio's farms. These newly found markets increased the value of farm products nearly 50 per cent, thus bringing prosperity to agriculture and aiding in the development of manufactures. During the first thirty-five years of their existence, the canals earned good revenues, receipts exceeding expenditures by \$7,073,000. The canals fully justified their construction, but they could not compete with a later rival, the railroads. The era of railroad-construction began about 1840 and soon a network of lines gave Ohio a railway system unsurpassed by any other state.



*Problem VI. How Michigan attempted to annex Toledo and Maumee Bay*

**Ohio-Michigan boundary dispute.** In 1835 a dispute arose over the question of Ohio's northern boundary. The constitution of Ohio drew a line which included the most northern cape of Maumee Bay, but the act of Congress authorizing Ohio to form a constitution drew a boundary line due east from the southern shore of Lake Michigan. A line drawn as directed by Congress would pass several miles south of Lake Erie, although Congress really intended to make that lake the northern boundary of Ohio. In 1817 a government surveyor named Harris ran the northern boundary in accordance with the provision in Ohio's constitution, but soon afterwards another surveyor, Fulton, ran it on the east-and-west line. Between the two lines was a strip of land five miles wide at the Indiana end, and eight miles wide at the eastern end.

The territory of Michigan claimed that the Fulton line was the correct one, while the state of Ohio insisted upon the northern or Harris line. The ownership of Toledo and of Maumee Bay was involved in this dispute. Toledo had been formed in 1832 from the settlements of Vistula and Port Lawrence on the Maumee River. Its favorable location at the junction of the Miami and Erie Canal with the Maumee River made it certain to become a center for canal shipping and lake transportation. The people of the young town were anxious to belong to Ohio, and in 1835 the state legislature extended the adjoining counties so as to include the disputed area. The quarrel became so bitter that Governor Lucas called out the Ohio militia to support the claims of his state, while Governor Mason of Michigan took similar action. Before any blood was shed, two messengers sent by President Jackson arrived at Toledo. They persuaded the rival forces to disband and submit the question to Congress. Ohio won the victory at Washington, and so Toledo remained within the Buckeye State. Michigan was compensated in 1837 by the gift of the Upper Peninsula, until then regarded as a part of Wisconsin.

*Problem VII. How Ohio helped elect the first Ohio President*

**Nomination of General Harrison.** In the year 1840 occurred one of the most remarkable political contests of our history, the famous "Log-Cabin Campaign." In that year President Martin Van Buren was seeking reelection as the Democratic candidate; his Whig opponent was William Henry Harrison of Ohio. At

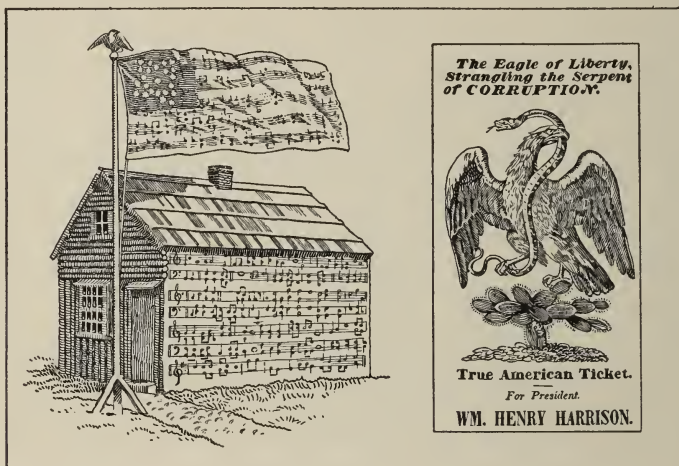


FIG. 33. Two of the emblems used in the Log-Cabin Campaign

the time of his nomination, General Harrison was living quietly on his farm at North Bend, Ohio, a few miles below Cincinnati. His life had been largely spent in the service of his country; he had been governor of Indiana Territory, had crushed the Indian Confederacy at Tippecanoe, and defeated the British at the battle of the Thames. Although Harrison held no such place in the Whig party as its great leaders, Clay and Webster, he was highly regarded throughout the entire West.

**The Log-Cabin Campaign (1840).** Unfortunately for the Democrats, one of their papers undertook to ridicule Harrison's poverty and his humble surroundings. "Give him a barrel of hard cider," said the *Baltimore American*, "and settle a pension of two thousand a year upon him, and, our word for it, he will

sit the remainder of his days content in a log cabin." The Whigs caught up the sneer and turned the taunt into an emblem of victory. "Old Tippecanoe" became the log-cabin candidate. The Whigs made much of the fact that Harrison was a man of the people, of simple tastes and homely virtues. Whig orators said that while the country was suffering from the terrible panic, Van Buren was living in splendor at the White House, eating from plates of gold and drinking choice wines. The Whigs adopted the log cabin as their campaign emblem (Fig. 33), and hard cider was the beverage on tap at political meetings all over the land.

**Campaign rallies and songs.** Never before had the people shown so much enthusiasm over a presidential campaign. For the first time immense outdoor meetings or campaign rallies were held, a prominent feature of which was a log cabin, wheeled along amid enthusiastic shouts for "Tippecanoe and Tyler too!" In Ohio immense mass meetings were held at Columbus, Lancaster, Chillicothe, and Cincinnati. On June 10-11, a throng said to number 40,000 persons attended the celebration held on the site of old Fort Meigs. In order to make the celebration more realistic, a sham attack on the fort was made at midnight by a band of two hundred Indians, some of whom had



FIG. 34. Thomas Corwin

Thomas Corwin was the most famous stump-speaker of his time. He was reared on a farm near Lebanon, Ohio, and practiced law in Cincinnati. He served in both houses of Congress and from 1840 to 1842 was governor of Ohio. He was Secretary of the Treasury under President Fillmore, and Minister to Mexico from 1861 to 1864.

participated in the real event twenty-seven years before. The rally at Dayton was held on September 10, the anniversary of Perry's victory on Lake Erie. By this time the campaign had become a crusade, and the multitude present covered ten acres, by actual measurement.

The two most famous songs of the campaign were by Ohio writers. Otway Curry of Marysville wrote "The Buckeye Cabin Song," and Alexander C. Ross of Zanesville wrote "Tippecanoe and Tyler Too!" This was the real rollicking song of the campaign; it was sung everywhere, and Senator Benton complained that the steamboats and hotels were crowded with men singing this "Whig doggerel," to the annoyance of decent Democrats. It had a swing to it and could be lengthened at will to meet all occasions. After each verse was sung the chorus, so insulting to the supporters of Martin Van Buren:

For Tippecanoe and Tyler, too—Tippecanoe and Tyler, too;  
And with them we'll beat little Van, Van, Van.  
Van is a used-up man;  
And with them we'll beat little Van.

The campaign ended with the triumphant election of General Harrison, but in the day of victory came a bitter disappointment. Just one month after the inauguration, the brave, upright, kindly Harrison passed away, the first of our presidents to die in office.

### *Problem VIII. How Ohio aided in the Mexican War*

Ohio in the Mexican War. War with Mexico was declared May 13, 1846. Many northern Whigs, including Senator Corwin of Ohio (Fig. 34), opposed the war on the ground that its real object was to secure more territory for slavery. Although there was little enthusiasm in Ohio over the war, there was no lack of courage or patriotism on the part of her citizens. Ohio's volunteers were organized into five infantry regiments, besides fifteen independent companies and five companies who enlisted in a regiment of regulars. In all, 7000 officers and men



from Ohio served in the army, or about one eighth of all the land forces, besides those serving in the navy.

Prominent among Ohio's volunteer officers was Brigadier-General Thomas L. Hamer, who lost his life at Monterey. Other Ohio officers who won the rank of brigadier-general were Captain Ferdinand Van Derveer of the First Ohio Volunteers, Colonel George W. Morgan and Robert B. Mitchell of the Second, Lieutenant Samuel Beatty and Lieutenant Colonel George W. McCook of the Third, and Lieutenant August Moor of the Fourth.

In the regular army there were also several young Ohio officers who distinguished themselves in the Mexican campaigns. Lieutenant Ulysses S. Grant won his captaincy at the storming of Chapultepec, the strong fortress which guarded the City of Mexico. Lieutenants William T. Sherman, Don Carlos Buell, Charles C. Gilbert, and John S. Mason also won promotion and received a training which fitted them for high commands in the Civil War. A number of officers appointed from Ohio served with distinction in the United States Navy in its operations against Mexico. Among these were Reed Werden, L. C. Rowan, George M. Ransom, and Henry Walker.

#### TOPICS FOR SPECIAL REPORTS

1. **Ohio's Struggle for Statehood.** RANDALL and RYAN, *History of Ohio*, III, pp. 69-110.

2. **The Louisiana Purchase.** BRUCE, H. A., *Romance of American Expansion*, ch. II; DRAKE, S. A., *Making of the Great West*, pp. 171-183; FARIS, J. T., *Real Stories from Our History*, ch. XVI; HALSEY, F. W., *Great Epochs in American History*, IV, pp. 14-154; SPARKS, E. E., *Expansion of the American People*, chs. XVI-XVII; WRIGHT, H. C., *American Progress*, ch. III.

3. **The Conspiracy of Aaron Burr.** ELSON, H. W., *Side Lights on American History*, ch. VII; HALSEY, F. W., *Great Epochs in American History*, IV, pp. 180-185; HART, A. B., *Formation of the Union*, pp. 189-191; NICOLAY, HELEN, *Our Nation in the Building*, ch. IV; RANDALL and RYAN, *History of Ohio*, III, pp. 193-256; SPARKS, E. E., *Expansion of the American People*, pp. 211-215.

4. **Ohio and the War of 1812.** CHANNING and LANSING, *Story of the Great Lakes*, ch. XIII; GRIFFIS, W. E., *The Romance of Conquest*, ch. XI; RANDALL and RYAN, *History of Ohio*, III, pp. 257-310.

5. **Life on the Western Frontier.** HALSEY, F. W., *Great Epochs in American History*, V, pp. 154-157; GRIFFIS, W. E., *The Romance of Conquest*, ch. VII; RANDALL and RYAN, *History of Ohio*, III, pp. 3-34; WRIGHT, H. C., *American Progress*, ch. I.

6. **The National Road.** CHANNING, E., and LANSING, M. F., *Story of the Great Lakes*, chs. XVIII-XIX; FARIS, J. T., *Real Stories from Our History*, chs. XXI-XXII, XXV.

7. **The Erie Canal.** CHANNING, E., and LANSING, M. F., *Story of the Great Lakes*, ch. XX; HALSEY, F. W., *Great Epochs in American History*, VI, pp. 17-19; MOWRY, W. A., *American Inventions and Inventors*, pp. 215-220; SPARKS, E. E., *Expansion of the American People*, ch. XXII.

8. **Canal Construction in Ohio.** RANDALL and RYAN, *History of Ohio*, III, pp. 335-366.

9. **Early Steamboats.** BARSTOW, C. L., *A New Nation*, pp. 95-105; ELSON, H. W., *Side Lights on American History*, ch. V; FARIS, J. T., *Real Stories from Our History*, chs. XXXII-XXXV; HALSEY, F. W., *Great Epochs in American History*, IV, pp. 186-196; MOWRY, W. A., *American Inventions and Inventors*, pp. 221-228; WRIGHT, H. C., *American Progress*, ch. V.

10. **The Steam Railroad.** FARIS, J. T., *Real Stories from Our History*, chs. XXXVI-XXXVIII, XL-XLI; HALSEY, F. W., *Great Epochs in American History*, VII, pp. 12-16; MOWRY, W. A., *American Inventions and Inventors*, pp. 221-228; PAXSON, F. L., *The Last American Frontier*, ch. XIX; SPARKS, E. E., *Expansion of the American People*, ch. XXIII; WRIGHT, H. C., *American Progress*, ch. X.

11. **The Log-Cabin Campaign.** ELSON, H. W., *Side Lights on American History*, I, ch. XII; HALSEY, F. W., *Great Epochs in American History*, VI, pp. 199-207; NICOLAY, HELEN, *Our Nation in the Building*, ch. XVI; RANDALL and RYAN, *History of Ohio*, IV, pp. 19-46; WILSON, J. G., *The Presidents*, II, chs. II-III.

12. **The War with Mexico.** HALSEY, F. W., *Great Epochs in American History*, VII, pp. 77-87; GRIFFIS, W. E., *The Romance of Conquest*, chs. XVIII-XX; NICOLAY, HELEN, *Our Nation in the Building*, ch. XVII; RANDALL and RYAN, *History of Ohio*, IV, pp. 47-74; WRIGHT, H. C., *American Progress*, ch. XIV.

## CHAPTER III

### SEVENTY YEARS OF PROGRESS (1851-1921)

#### *Problem I. How public sentiment in Ohio was aroused against slavery*

**Ohio's second constitution.** As Ohio grew in population and industry, experience showed some of the defects of her first constitution. Accordingly delegates were elected to a constitutional convention which met at Columbus in 1850. They drew up a constitution which reorganized the courts, limited somewhat the power of the legislature, and slightly increased that of the governor. This constitution was adopted by a vote of the people in June, 1851, and, with important amendments added in 1912, is the one under which we live today.

**The dispute over slavery.** In the years following the Mexican War, the North and the South had many quarrels over the slavery question. The great staple of the South was cotton, and the southern people believed that cotton could not be produced without slave labor. Since the raising of cotton rapidly exhausted the soil, Southerners were eager to carry slavery into the western territories and cultivate the new lands by slave labor. Meantime thousands of men in the North had come to look upon slavery as a great moral evil. Some of these Northerners, like Lincoln of Illinois, had no thought of interfering with slavery in the southern states, but they declared that it must not spread into the western territories of New Mexico, Kansas, or Nebraska.

**The abolition movement.** There were other northern men who took a more radical view. These abolitionists, as they were called, denounced slavery as a sin and demanded that it should be abolished everywhere. At first the abolitionists were condemned by nearly everyone as dangerous mischief-makers,

who were sowing the seeds of discord between the North and the South. Mobs broke up their meetings, destroyed their printing presses, and tried to silence their leaders. But persecution only increased the number of abolitionists, and gradually their influence began to tell. Eloquent speakers and gifted



FIG. 35. State Capitol, Columbus, Ohio

The present Capitol was built on the site of the old State House, which was destroyed by fire in 1852. The corner stone of this building was laid on July 4, 1839, by Jeremiah Morrow, pioneer and ex-governor. The annex was completed and occupied in 1900. The capacity of the Capitol is wholly inadequate to present-day needs, and many of the state departments are now housed in a separate building. The statue in the foreground is that of Ohio's martyred President, William McKinley

writers took up the cause of emancipation. Whittier, Emerson, and Lowell brought the pen of genius to its aid; orators like Wendell Phillips and Theodore Parker denounced slavery in words of fire.

Early Ohio abolitionists. The people of Ohio were divided in their opinion on the slavery question. Many Virginians had settled in the state; their descendants, and indeed the great majority of Ohio people, were opposed to any interference with slavery in the South. There was, however, a strong sentiment against permitting slavery to spread into the western territory.



Ohio also had its share of radical abolitionists, many of whom were Quakers living in the central and southeastern section of the state. In fact Ohio may be called the home of abolition, for the first newspaper in the United States which advocated emancipation was published at Mount Pleasant in 1817. This was the *Philanthropist*, whose editor was a Quaker named Charles Osborn. Another Ohio man living at St. Clairsville was one of the earliest, as well as one of the greatest, of the abolition leaders. This was Benjamin Lundy who in 1815 organized the Union Humane Society, the object of which was to arouse anti-slavery sentiment. William Cooper Howells, the father of Ohio's foremost novelist, was a prominent member of this society. Lundy afterwards moved to Mount Pleasant, where he published a famous abolition newspaper, *The Genius of Universal Emancipation*. It was the influence and example of Lundy which enlisted William Lloyd Garrison, then a mere youth in the cause of abolition.

**Agitation against slavery.** The society founded by Lundy grew and multiplied until in 1835 there were two hundred and thirteen anti-slavery societies in Ohio, with 17,000 members. About this time James G. Birney, a noted Kentucky abolitionist, moved to Cincinnati and began to publish the *Philanthropist*.

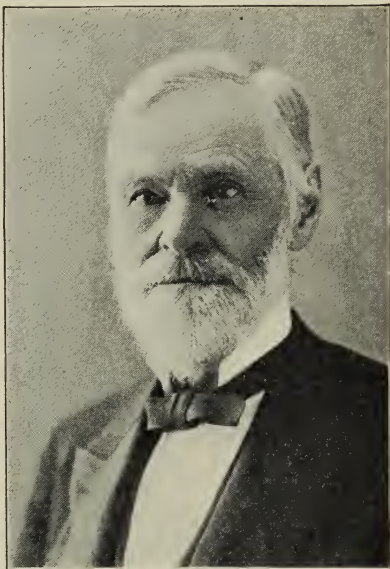


FIG. 36. John Sherman

John Sherman, a famous American statesman, was one of the organizers of the Republican party in Ohio. He was born at Lancaster, Ohio, studied law, engaged in practice at Mansfield, and soon became the most famous citizen of Richland County. He represented Ohio in the United States Senate for thirty-two years. Sherman showed great ability as Secretary of the Treasury under President Hayes, and later served as Secretary of State under President McKinley

The people of Cincinnati were determined to suppress anti-slavery agitation, and one night a mob attacked Birney's newspaper office, seized his press, and threw it into the river. The same mob then invaded the office of the *Gazette*, published by Charles Hammond, another vigorous opponent of slavery.



FIG. 37. Chief routes of the Underground Railroad

But persecution of the abolitionists only made converts to their cause, just as persecution of the ancient martyrs aided the cause of Christianity.

*Problem II. How the anti-slavery men in Ohio showed their opposition to slavery*

**The Underground Railroad.** The influence of religion was now helping the cause of emancipation. From thousands of northern pulpits, slavery was denounced as a crime against God and man. Many devout men thought it no crime to aid the fleeing slave to escape from bondage. They had a good opportunity to do this, since the Ohio River formed the boundary for nearly four hundred miles between Ohio and the slave states of Kentucky and Virginia. So the homes of abolitionists living in southern Ohio became places of refuge for fugitive slaves. This "Underground Railroad," as it was called, was not really

a railroad, nor was it underground. It was a chain of the homes of abolitionists, where fleeing slaves might find refuge. Each house was called a station, and the route stretched from the border slave states to Canada, or to some large city in a free state (Fig. 37). On reaching the first station the fugitive was clothed, fed, and hidden until he could be taken to the next station, perhaps twenty miles north. Even in distant Louisiana the slaves knew that freedom lay in the direction of the north star; but they knew, too, that the journey was long and filled with peril. In fifty years nearly 50,000 slaves made good their escape, but 3,000,000 of their brothers remained in bondage.

**Ohio men who aided fugitive slaves.** The Underground Railroad was operated more extensively in Ohio than in any other state. Two of its chief operators lived in Ohio. One was a Cincinnati man, Levi Coffin, whose leadership gave him the title of "President of the Underground Railroad." Coffin estimated that during a period of thirty years he had helped 3000 slaves to reach Canada. One of his best assistants was John Rankin, a fighting Presbyterian minister of Ripley, Ohio. This aggressive abolitionist was mobbed for his views on twenty different occasions. "The aspect of a fierce mob is terrible," said Rankin; but neither threats nor violence could turn him aside from what he considered the plain path of duty.

**The Fugitive-Slave Law.** Indignant at the operations of the Underground Railroad, the slave-owners demanded that Congress should pass a strict law for the punishment of persons who aided fugitive slaves to escape. The result was the Fugitive Slave Law of 1850, which made it the duty of all citizens to assist in the return of fugitive slaves. This act was denounced by the anti-slavery men of Ohio. One of their leaders, Joshua R. Giddings, declared in Congress, "The freemen of Ohio will never turn out to chase the panting fugitive." A few years later a former slave living near Oberlin, Ohio, was arrested by United States officers, but was taken from their custody by an Oberlin professor aided by a number of college students. The rescuers were in turn arrested for violation of the Fugitive Slave Law, and two of their number were convicted by the United

States court at Cleveland. This conviction, and similar occurrences in other parts of the North, made thousands of converts to the new anti-slavery party which was being formed.

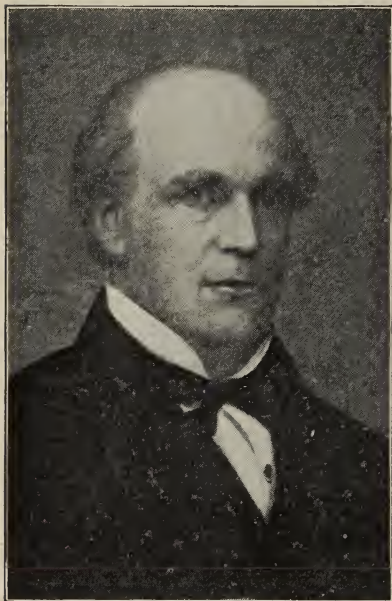


FIG. 38. Salmon P. Chase

Soon after graduating from Dartmouth College, Chase began the practice of law in Cincinnati. From 1849 to 1855 he represented Ohio in the United States Senate, and won national recognition as a great anti-slavery leader. Chase served two terms as governor of Ohio, was chosen by President Lincoln for the difficult position of Secretary of the Treasury during the Civil War, and afterwards served as Chief Justice of the United States Supreme Court

northern states, if necessary to effect their capture. Governor Chase replied that Ohio would obey the Constitution and laws of the United States, but that under no circumstances could the military forces of Virginia or any other state invade Ohio soil.

#### The new Republican party.

This new party—the Republican—was formed in 1854 by men opposed to the extension of slavery. It waged its first presidential campaign two years later, and although defeated, its candidate received 1,300,000 votes. In Ohio the Republicans elected Salmon P. Chase for governor in 1855, and reelected him in 1857 (Fig. 38). At his suggestion the Ohio legislature passed a law reorganizing the militia system. A review of the military forces of the state was held in 1858, just as the nation was approaching the greatest crisis in our history.

After John Brown's raid at Harpers Ferry, Governor Wise of Virginia served notice on Governor Chase that Virginia would pursue abolition bands even into



*Problem III. How Ohio helped win the war for the Union*

**Ohio in the Civil War.** When the telegraph brought the startling news that Fort Sumter had been fired upon (April 12, 1861), the whole state rallied to the defense of the Union. Three days later President Lincoln issued his call for 75,000 troops; the quota for Ohio was 13,000, but 30,000 responded to the call. After the disaster at Bull Run, President Lincoln issued a second call, this time for 500,000 men. Ohio's quota was 67,000, but nearly 78,000 of her sons enlisted.

Throughout the war, Ohio showed this same spirit of loyalty in defending the sacred cause of the Union. In all, the state furnished 340,000 soldiers for the Union armies, or one eighth of all who fought for the old flag. Her soldiers formed part of every northern army, they marched in every campaign, and fought in every great battle from

Bull Run to Appomattox. Twenty-nine regiments of Ohio infantry and ten batteries of artillery were at the siege of Vicksburg; twenty-eight Ohio regiments saved the day at the bloody battle of Shiloh; thirty-five regiments of infantry, three of cavalry, and seven batteries were with the Army of the Cumberland as it fought its way from Stone River to

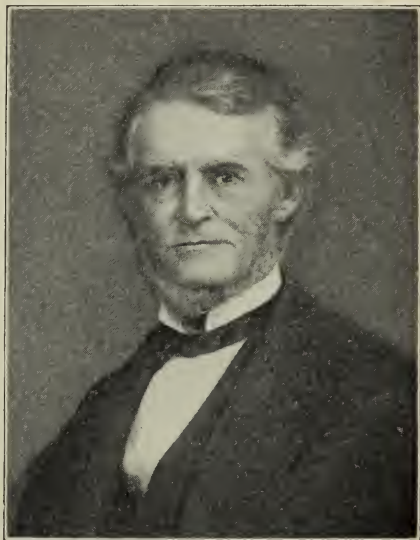


FIG. 39. William Dennison

Dennison was born in Cincinnati, and graduated at Miami University. While governor of Ohio at the outbreak of the Civil War, he appointed George B. McClellan to command Ohio's troops, and ordered him into western Virginia as the best means of protecting Ohio from invasion. This campaign, planned by an Ohio governor and executed by Ohio's militia, saved for the Union the thirty-four counties afterwards erected into the state of West Virginia

Atlanta; forty-three Ohio regiments stormed the heights of Missionary Ridge; nine infantry regiments and two of cavalry followed gallant "Phil" Sheridan in the Shenandoah Valley; twelve regiments of infantry, one of cavalry, and four batteries formed part of the gallant host which stemmed re-

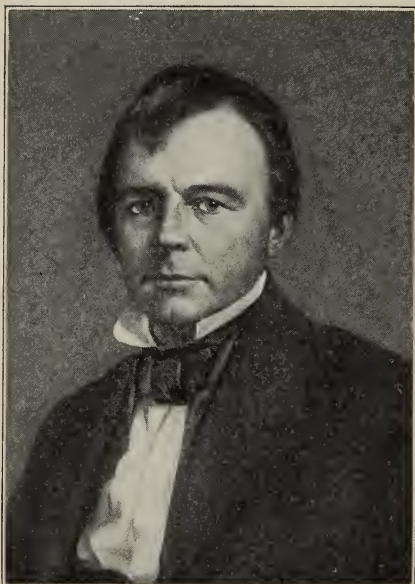


FIG. 40. David Tod

David Tod was born in Youngstown, Ohio. He was a successful lawyer and prominent Democratic leader. From 1847 to 1852 he was minister to Brazil. In 1862 he was elected governor of Ohio by the Union party, a combination of Republicans and War Democrats

bellion's high tide at Gettysburg; forty-five Ohio regiments marched with Sherman from Atlanta to the sea. More than 12,000 Ohio soldiers found their graves on the field of battle; 13,000 more died of disease, and 40,000 others were wounded in action.

**Famous Civil War leaders.** The achievements of her private soldiers form only a part of Ohio's contribution to the cause. The greatest generals in the Union armies were Ohio men by birth or training—Grant, Sherman, Sheridan, McClellan, Buell, McPherson, Rosecrans, and McDowell. The three war governors of Ohio—William Dennison, David Tod,

and John Brough (Figs. 39, 40, 41)—were tried men and true, stanch supporters of President Lincoln and his policies. Salmon P. Chase of Ohio was Secretary of the Treasury in Lincoln's war cabinet; while John Sherman and Benjamin F. Wade upheld the Union cause in the United States Senate. Well may Ohio point to her sons in the Civil War and say, like Cornelia of old, "These are my jewels."

*Problem IV. How Ohio's common-school system was established*

The ideal of free public education. Free public education has always been one of the most cherished ideals of the American people. In the history of our national life there is no nobler monument than the little red schoolhouse planted in so many districts throughout the land. The sturdy pioneer who pierced the unbroken western wilderness gave up all the advantages of New England life save one; he took with him the public-school system. Into the great Ordinance of 1787 he wrote those immortal lines: "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged."

**Ohio's land grant for education.** When Ohio became a state, Congress donated section 16 in every

township for the support of her public schools. This made a land grant of 704,000 acres, or one thirty-sixth of the entire area of the state. A large part of this splendid gift was wasted through mismanagement. At first the school lands were leased, but in 1827 the General Assembly authorized their sale. The state borrowed the proceeds, paying 6 per cent interest for their use. Today the income from this source forms only a small part of the funds necessary to support our schools.

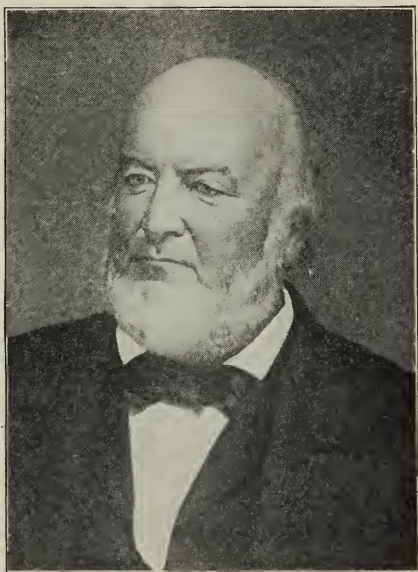


FIG. 41. John Brough

Brough was a noted journalist, and founded the *Cincinnati Enquirer*. Later he became a successful railroad manager. In 1863 he was nominated for governor of Ohio by the Union party, defeating the disloyal Vallandigham by an overwhelming majority



**Early schools of Ohio.** The first school in Ohio was taught in a little cabin at Belpré during the summer of 1789. At Marietta the first school was held in the blockhouse, which served as a fort and church as well as a schoolhouse. In time each frontier settlement had its primitive schoolhouse, usually built of logs, with greased-paper windows, a latchstring door, and floor

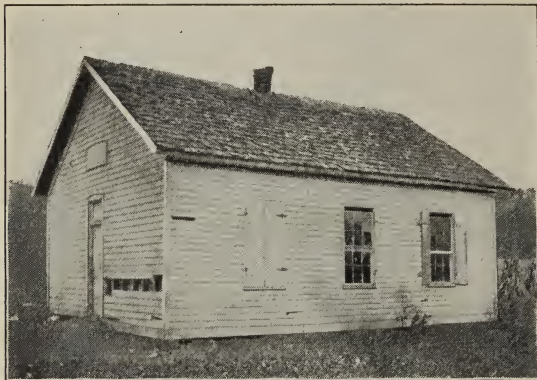


FIG. 42. Type of pioneer one-room schoolhouse

The great drawback of the district school is that pupils of all ages and grades are taught by a single teacher, who can only give a small amount of time to each class. To overcome this handicap, all the district schools of a township are sometimes consolidated in one centrally located building (see Fig. 45). A stage or wagon is provided for the transportation of pupils

of clay (Fig. 42). The seats for pupils were benches of hewn timber resting upon upright posts. The instruction was given by a man who would "get up" a school by contracting with neighboring families to instruct their children for a small sum, to be paid partly in money and partly in produce. During the

school term, which usually lasted from ten to fifteen weeks, he "boarded round" in the homes of his patrons, this forming part of his salary. These early schools were not free schools, but were supported by voluntary contributions from parents who wished their children to master the "three R's"—reading, writing, and arithmetic. The great ideal of free schools, open to all children and supported by public taxation, was yet to be realized.

**Champions of free public schools.** The men from New England who settled the Western Reserve were strongly in favor of free public schools. So, too, was Ephraim Cutler of Marietta, who introduced a bill in the General Assembly to establish a



public-school system. Cutler's plan was to divide the counties into school districts and to raise money by local taxes for school-houses and teachers. Another early friend of education in Ohio was Nathan Guilford of Cincinnati. Under the pen name of "Solomon Thrifty," Guilford published an almanac which urged the establishment of free schools. Caleb Atwater, a representative from Pickaway County in the General Assembly,

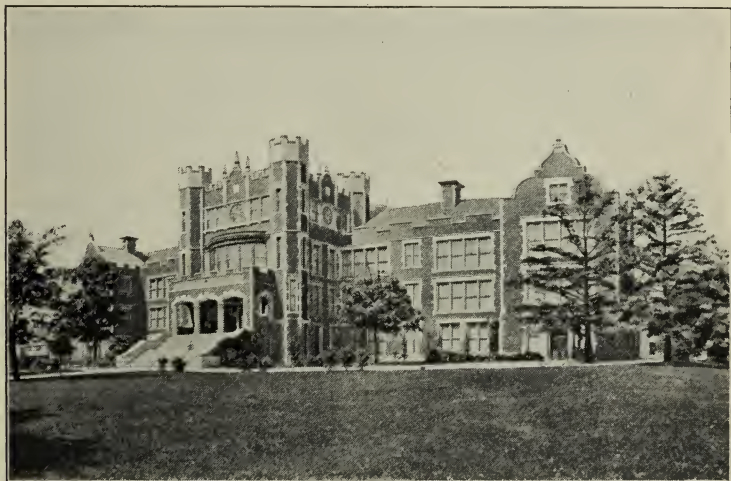


FIG. 43. Avondale School, Cincinnati, Ohio

was another great champion in the cause of popular education. To these three men—Ephraim Cutler, Nathan Guilford, and Caleb Atwater—Ohio owes her common-school system, first established by the General Assembly in 1825.

**Advantages of the common-school system.** The plan adopted was drawn up by Nathan Guilford as chairman of the committee on public schools. It provided for a fund "for the instruction of youth of every class and grade without distinction, in reading, writing, arithmetic, and other necessary branches of a common education." This fund was to be raised in each county by an annual tax of one half of a mill upon its taxable property. Each county was to be divided into school districts, in which officers were to be elected charged with the duty

of providing public schools. Later acts increased this school tax to three fourths of a mill, and authorized a special tax for building and repairing schoolhouses.

Ohio's common-school system was patterned after that of New England, where Massachusetts had led the way in establishing free schools. The argument for this democratic system was well stated by Nathan Guilford in his report to the General Assembly:—"The system of free schools places the children of the rich and poor more upon a level, and counteracts that inequality which birth or fortune would otherwise produce. When the children of the rich and poor have equal opportunities, the only superiority which can exist will arise from mental competition.

"The system of free schools extends the means of common education to the door of every man, and among all ranks and conditions. It is particularly favorable to the education of youth in the country, where the population is scattered and difficult to be united without some general system for the purpose. This system scatters schools in every neighborhood, within the reach of every farmer, and freely offers to the poor tenants of every cabin the means of instruction."

**Influence of Horace Mann.** On the campus of Antioch College at Yellow Springs, Ohio, there is a statue of Horace Mann, one of the world's great educators, and president of this college during the last seven years of his life. Horace Mann formerly lived in Massachusetts, where his splendid work brought about an educational awakening all over the Union. He urged the people to build better schoolhouses, to employ well-trained teachers, and to spend more money upon the public schools. The influence of Horace Mann spread to Ohio, where the Western College of Teachers was organized at Cincinnati in 1831.

**Ohio's first state superintendent.** A few years later, Samuel Lewis was appointed the first state superintendent of Ohio schools, at an annual salary of \$500 (Fig. 44). The new superintendent worked with tireless energy to improve the common schools. He traveled over the state on horseback, addressing

educational meetings, visiting schools, and encouraging the teachers. He made many excellent suggestions to the General Assembly for the improvement of school facilities. Cincinnati was the first city to adopt a system of graded schools, and her example was soon followed by Cleveland, Dayton, and Columbus. In 1849 the General Assembly passed an important law which authorized each city or township to elect a board of education for the general management of its schools. This law required the schools to be kept open not less than thirty-six nor more than forty weeks in each year.

#### Progress of Ohio's schools.

From this time on, the public schools of Ohio made rapid progress. Shortly after the Civil War, General James A. Garfield introduced a bill in Congress for the establishment of a national department of education. In his speech on this measure he said: "Mr. Speaker, if I were called upon

today to point to that in my own state of which I am most proud, I would not point to any of the flaming lines of her military record, to the heroic men and the brilliant officers she gave to this contest. I would not point to any of her leading men of the past or present, but I would point to her common schools. I would point to the 13,000 schoolhouses and the 700,000 pupils in the schools of Ohio. I would point to the \$3,000,000 she has paid for schools during the past year alone. This, in my judgment, is the proper gauge by which to measure the progress and glory of states."

The development of Ohio schools since Garfield's speech shows that her people are more devoted than ever to the cause

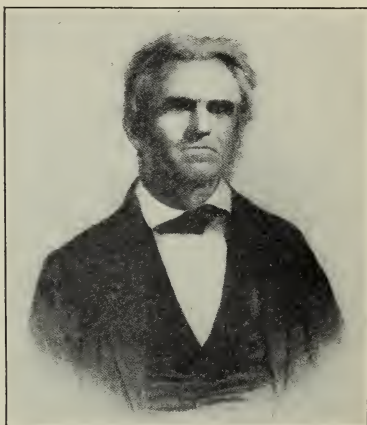


FIG. 44. Samuel Lewis

Samuel Lewis was the first superintendent of schools in Ohio. He was an ardent advocate of the abolition of slavery, and was the anti-slavery candidate for governor in 1846 and 1848

of popular education. The latest report of the state superintendent shows that Ohio's annual expenditures on her common schools now exceed \$60,000,000. To secure greater efficiency, 722 consolidated or centralized rural districts have been formed (Fig. 45). More than 35,000 teachers are employed to instruct Ohio's army of nearly 1,000,000 pupils. Of this total number of

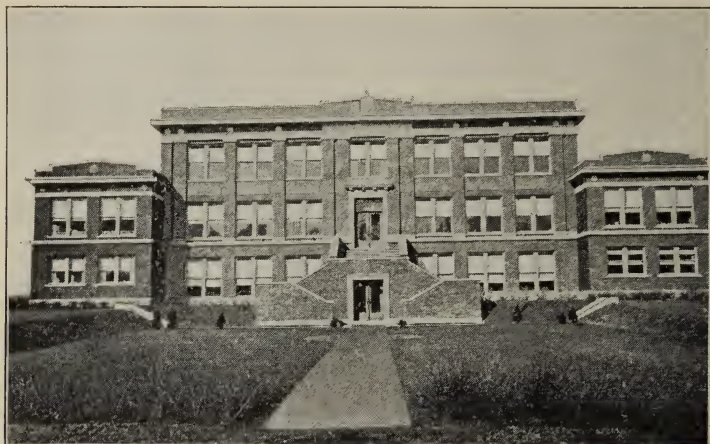


FIG. 45. Lanier township centralized school, Preble County

Preble County has revolutionized its rural school system by building twelve of these beautiful centralized schools to replace ninety-four one-room schoolhouses. In many cases the grounds have been landscaped through the coöperation of the College of Agriculture of the Ohio State University. The school shown above, for example, has a beautiful lawn with sunken-garden effect. County Superintendent Fogarty says: "Beautiful surroundings have a silent but powerful influence in shaping character, and money so spent is well spent"

pupils, about 130,000 are enrolled in the 600 high schools of the state. In addition, 21,534 students are studying in Ohio's colleges and universities, and the total annual expenditure for these institutions is \$7,425,000.

*Problem V. How the people of Ohio provided for higher education*

State universities and colleges. Ohio has more colleges and universities than any other state in the Union. Three of these institutions are maintained by the state: the Ohio University



at Athens, Miami University at Oxford, and the Ohio State University at Columbus. When Ohio was admitted to the Union, Congress gave the state three townships of land for university purposes. Two of these were in the Ohio Company's purchase, and became the site of the Ohio University at Athens. This institution was founded in 1804, and was the first university west of the Alleghenies to receive a public land endowment. The third township granted to Ohio became the site of Miami



FIG. 46. Townsend Hall, Ohio State University

University, founded in 1809. The Ohio State University received its endowment of 640,000 acres of land in accordance with an act of Congress passed in 1862 to encourage the founding of agricultural and mechanical colleges. To secure the location of this institution at Columbus, Franklin County gave a large sum for the purchase of a farm and the erection of buildings. Founded in 1870, the Ohio State University is today one of the largest institutions in the country, and provides instruction along practically every line of advanced education. The university includes a Graduate School and several colleges—Agriculture; Arts, Philosophy, and Science; Commerce and Journalism; Dentistry; Education; Engineering; Law; Medicine; Pharmacy; and Veterinary Medicine.

These three state universities are maintained chiefly from the proceeds of a state tax levied upon all taxable property, together with a small income from their land endowment. For the training of teachers, Ohio has four normal schools, located at Athens, Oxford, Kent, and Bowling Green.



**Newspapers of Ohio.** Another educational agency, the newspaper, appeared in Ohio even earlier than the colleges. In 1793, William Maxwell of Cincinnati began to publish the *Centinel of the North-Western Territory*, the first newspaper printed north of the Ohio River (Fig. 47). Nathaniel Willis started the *Scioto Gazette* at Chillicothe in 1800. When the first cabins of Columbus began to appear on the banks of the Scioto, the *Western Intelligencer* moved there from Worthington "to rock the cradle of the infant capital," as its editor announced. That the early readers waited long for their news may be judged from the fact that in the *Western Spy* published at Cincinnati on July 31, 1802, the London news was dated May 10, while the latest word from New York was received on July 9. Some of these pioneer newspapers are still published, together with a host of later ones, so that today Ohio ranks as the fourth state in the number of its newspapers, and has more papers in proportion to its population than any other state.

#### *Problem VI. Why Ohio became a great industrial state*

**Industrial expansion since the Civil War.** The half century since the Civil War has been an era of marvelous growth and prosperity for the entire United States, in which no state has shared more fully than Ohio. Since 1865 the population of the United States has trebled, and twelve new states have been added to the Union. Progress in industry has been even more rapid than the growth in population. Today the value of our agricultural products is many times as great as in 1865, a result due largely to the use of improved machinery and to more intelligent methods of farming. Within the last decade the value of Ohio's farm crops has increased 174 per cent, from \$221,000,000 in 1909 to \$607,000,000 in 1919.

**Ohio becomes a manufacturing state.** Even more striking has been the growth of manufactures since the Civil War. Our country held fourth place among the manufacturing nations of the world in 1865, while thirty years later the United States had won first place—our present position. The development

of Ohio has closely paralleled that of the United States. Since the Civil War, Ohio has become a great manufacturing state, although agriculture is still important. Since 1879 Ohio has held fifth place in the value of manufactured products, being surpassed only by New York, Pennsylvania, Illinois, and

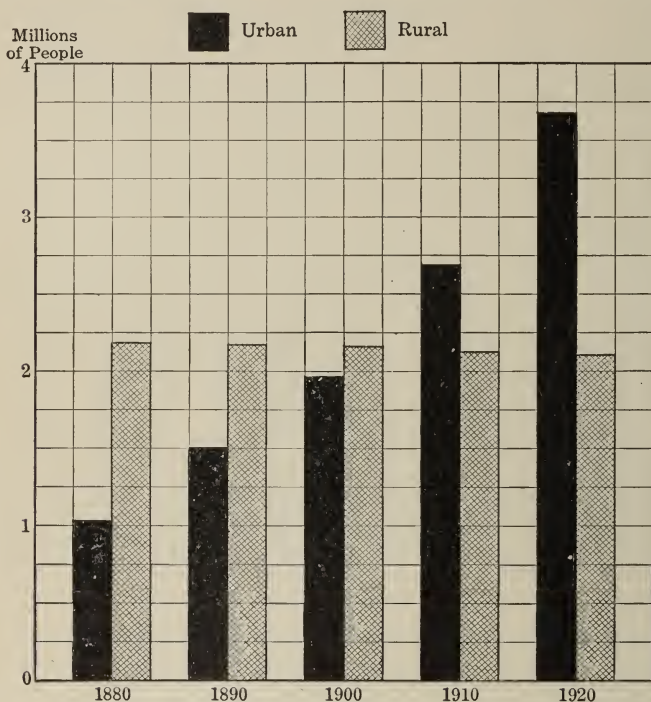


FIG. 48. Urban and rural population of Ohio, 1880-1920

Massachusetts. As a result of this growth in manufactures, more Ohio people now live in cities and villages than on the farms. At the last census 64 per cent of Ohio's population was classed as urban, and only 36 per cent as rural (Fig. 48).

The causes which have contributed to make Ohio a great manufacturing state may be summarized as follows:

1. Ohio's favorable location as the natural gateway to the Mississippi Valley.



2. A magnificent system of waterways, supplemented by more than 11,000 miles of steam and electric lines.

3. Ohio's splendid natural resources, especially her rich deposits of coal, petroleum, and natural gas.

4. The concentration of manufacturing in large plants, making possible the use of expensive machinery, subdivision of labor, and the many economies of large-scale production.

5. The energy and efficiency of our workers, trained under a system of free public education, and the skill and enterprise of our captains of industry.

**Constitutional amendments of 1912.** As a result of this great industrial development, it became necessary to modify Ohio's constitution of 1851 so as to meet the changed conditions of modern life. Accordingly a constitutional convention was held in 1912, which submitted forty-two amendments to the voters, thirty-four of which were approved. The chief purpose of the amendments was to make the state government more quickly and directly responsive to the will of the people. The most important of these amendments relate to the following subjects:

1. Providing for the initiative and referendum upon subjects of state legislation.

2. Establishing a system of direct primary nominations for state, district, county, and municipal offices.

3. Authorizing legislation for minimum wages, and for the comfort, health, safety, and general welfare of employees.

4. Providing for compensation to employees in case of injuries during employment, the awards to be paid out of a fund created by compulsory contributions from employers.

5. Abolishing prison contract labor.

6. Modifying the judicial system of the state.

7. Authorizing the legislature to change the jury system so as to provide for a verdict in civil cases by the agreement of three fourths of the jury, instead of by unanimous consent of all members.

8. Providing for the merit system in the civil service of the state, also in counties and cities.

9. Authorizing the regulation of corporations by means of a state board or commission.

10. Granting municipal home rule, by permitting cities and villages to frame and amend their own charters.

*Problem VII. What Ohio men did in the Spanish-American War and in the Philippines*

**Cuba rebels against Spain.** From the voyages of Columbus until the early part of the nineteenth century, Spain ruled over a vast empire in Central and South America. So harsh and tyrannical was her rule that during the first quarter of the nineteenth century, all of her American colonies became independent except Cuba and Porto Rico. These islands Spain ruled with the same harsh tyranny that had lost her great empire.

**The Spanish-American War.** On more than one occasion President McKinley urged Spain to grant the reforms demanded by the Cubans, but she delayed until at last the Cubans would accept nothing less than complete independence. By the year 1898 the "Pearl of the Antilles" had become a place of misery and starvation. At last the United States resolved in the interests of humanity to make the cause of Cuba her own. On April 19, 1898, the anniversary of Lexington, Congress passed a resolution declaring that Cuba ought to be free, and that Spain must withdraw her forces from the island. The President was authorized to use the entire land and naval forces of the United States to bring this about. Congress also declared that the United States did not intend to annex Cuba, but would leave the government of the island to its people. For this action there was no precedent in the history of nations. It was for no selfish purpose, but for the sake of humanity, that the great Republic of the West unsheathed her sword.

**Ohio's part in the war.** The sons of Ohio took a prominent part throughout the Spanish-American War. President McKinley, of Canton, Ohio, proved a most capable chief executive. His first Secretary of State was John Sherman of Ohio; he was

afterwards succeeded by William R. Day, another Ohioan, who negotiated the final treaty of peace. The Adjutant-General of the army, Henry C. Corbin, was from Ohio, and two other Ohioans received commissions as general officers of volunteers—J. Warren Keifer, commissioned Major-General, and George A. Garretson, Brigadier-General. In response to the President's call for volunteers, Ohio furnished 15,354 enlisted men. These were organized into ten infantry regiments, one light artillery, and one cavalry. Of these regiments, the 4th saw service in Porto Rico, and the 6th and 8th took part in the campaigns in Cuba.

**The Philippine Islands.** By the treaty of peace Cuba became

an independent republic, while Porto Rico and the distant Philippines were given to the United States. The inhabitants of the Philippines, like the Cubans, had taken up arms against Spanish tyranny. They wanted independence, and at first



FIG. 49. Statue of William McKinley

This statue stands in front of the State Capitol at Columbus, Ohio. On the base of the statue are engraved these words of Ohio's beloved President: "Let us ever remember that our interest is in concord, not conflict; and that our real eminence rests in the victories of peace, not those of war. Our earnest prayer is that God will graciously vouchsafe prosperity, happiness, and peace to all our neighbors; and like blessings to all the peoples and the powers of the earth"

refused to recognize our authority over the islands. Under a native chief, Aguinaldo, the Filipinos waged a guerrilla warfare for nearly two years, but the capture of their leader ended the insurrection. This capture was effected by Brigadier-General Frederick Funston, who was born at New Carlisle, Ohio. Of necessity rather than from choice, the United States determined to retain the Philippines until their people could be educated and prepared for self-government. The President appointed as our first governor of the islands, William H. Taft of Ohio. During his administration, Governor Taft introduced many important reforms, and by his never-failing tact succeeded in gaining the good will of the natives.

*Problem VIII. Who are Ohio's most famous soldiers and statesmen*

**Ohio's illustrious sons.** A monument that once formed part of Ohio's exhibit at the World's Columbian Exposition today stands near the northwest corner of the State House at Columbus. The heroic figure with outstretched hands on the central pedestal is that of Cornelia, the Roman matron. On the pedestal are carved her famous words: "These are my jewels." Upon the eight surrounding pedestals are bronze statues of Ohio's most illustrious men: Grant, Sherman, Sheridan, McPherson, Hayes, Garfield, Stanton, and Chase.

These eight men represent Ohio's offering during a single period of our national history—that of the Civil War. It would require many statues to exhibit the long line of illustrious Ohioans who have honored their state and nation throughout our entire national life. Rufus Putnam, who led the first emigrants to Marietta; Simon Kenton, Ohio's typical pioneer; Edward Tiffin, our first state governor,—these three are perhaps the greatest of Ohio's pioneers.

**Leading presidents and statesmen.** The successors of the pioneers proved worthy sons of the men who cleared the forest and fought the savage. So today Ohio claims a host of famous men, to enumerate whom is to call the roll of many of the



nation's greatest leaders. Ohio claims eight presidents if we count William Henry Harrison (born in Virginia), or seven if we count only those born in Ohio: Ulysses S. Grant (1869-1877), Rutherford B. Hayes (1877-1881), James A. Garfield

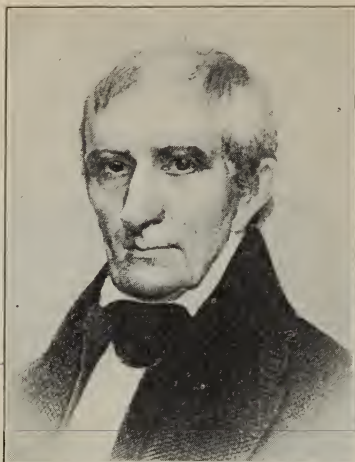


FIG. 50. A trio of Ohio generals

These three Ohio generals served in the Civil War. At the left is Philip H. Sheridan, one of the greatest cavalry leaders in history. In the center, Ulysses S. Grant, whose resolute will and steadfast courage at last won the great cause for which the Union armies fought. At the right, William T. Sherman, whose victories in the Southwest gave him a place second only to Grant among the northern generals

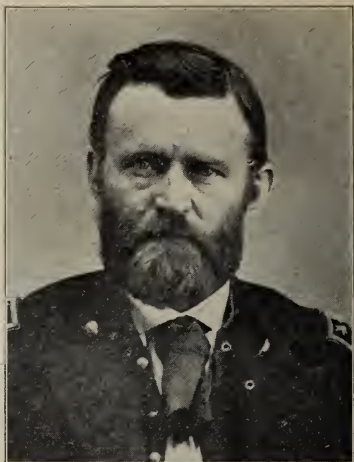
(1881), Benjamin Harrison (1889-1893), William McKinley (1897-1901), William H. Taft (1909-1913), and Warren G. Harding (1921-).

Ohio has had one vice-president (Thomas A. Hendricks, 1885); three presidents of the Senate (Benjamin F. Wade, Allen G. Thurman, John Sherman); one Speaker of the House of Representatives (J. Warren Keifer); three Chief Justices of the Supreme Court (Salmon P. Chase, Morrison R. Waite,



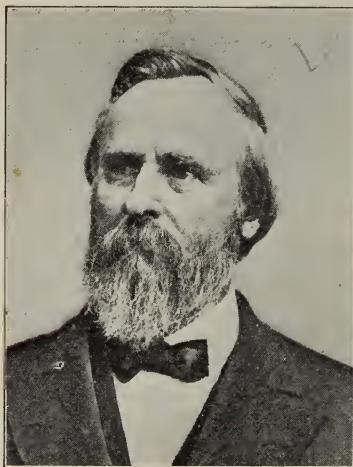
WILLIAM H. HARRISON

Born at Berkeley, Virginia, but lived at North Bend, Ohio, after 1814. President, March to April, 1841



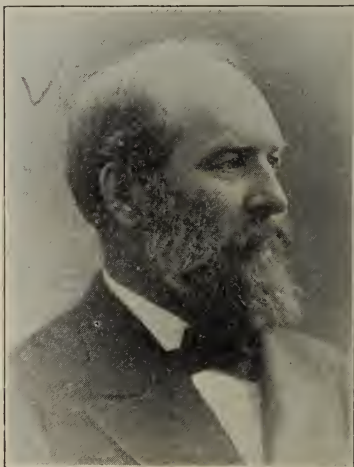
ULYSSES S. GRANT

Born at Point Pleasant, Clermont County, Ohio. Lieutenant-General of the Union armies; President, 1869-1877



RUTHERFORD B. HAYES

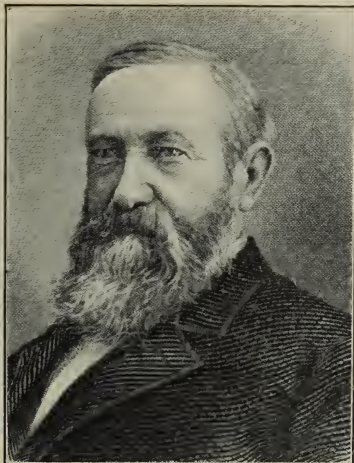
Born at Delaware, Ohio, later making his home at Fremont, Ohio. President, 1877-1881



JAMES A. GARFIELD

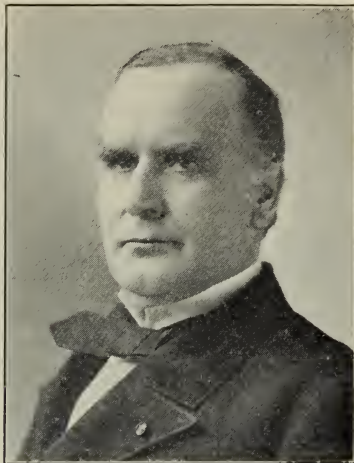
Born at Orange, Cuyahoga County, Ohio; afterwards lived in Cleveland. President from March until September, 1881

FIG. 51. Why Ohio is called the "Mother of Presidents"



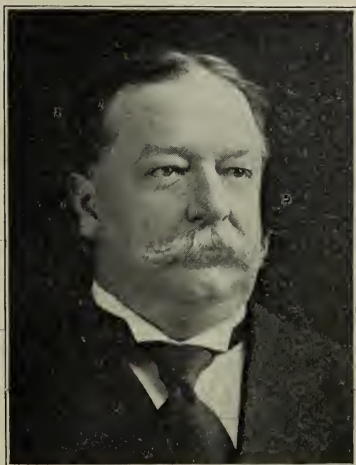
**BENJAMIN HARRISON**

Born at North Bend, Ohio; graduated at Miami University; afterwards moved to Indianapolis. President, 1889-1893



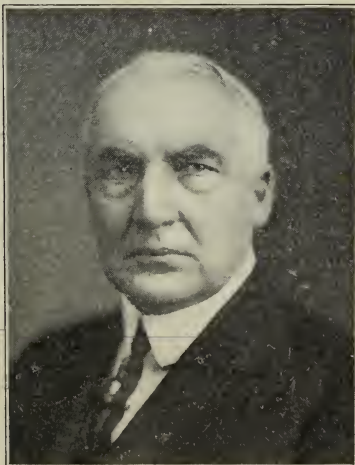
**WILLIAM MCKINLEY**

Born at Niles, Trumbull County, Ohio; later lived at Canton. President, March, 1897, until September, 1901



**WILLIAM H. TAFT**

Born at Cincinnati, Ohio; now Chief Justice of the United States Supreme Court. President, 1909-1913



**WARREN G. HARDING**

Born at Corsica, Ohio, afterwards residing at Marion, Ohio. Inaugurated President, March 4, 1921



and William H. Taft); five Associate Justices (John McLean, Noah H. Swayne, Stanley J. Matthews, William R. Day, William B. Woods); two Secretaries of State (John Sherman and William R. Day); five Secretaries of the Treasury (Thomas Ewing, Thomas Corwin, Salmon P. Chase, John Sherman, Charles



FIG. 53. Thomas A. Edison

Milan, Ohio, is the birthplace of the world's greatest inventor. Edison's success is due not only to his wonderful native ability, but also to his untiring energy and industry. He himself says that "genius is one tenth inspiration and nine tenths perspiration." Edison's inventions have given employment in this country alone to more than one million persons

Foster); six Secretaries of War (Lewis Cass, Ulysses S. Grant, William T. Sherman, Alphonso Taft, William H. Taft, Newton D. Baker); three Secretaries of the Interior (Thomas Ewing, Jacob D. Cox, Columbus Delano); also four Attorneys-General (Henry Stanbery, Alphonso Taft, Judson Harmon, Harry Daugherty); and three Postmasters-General (Return J. Meigs, John McLean, William Dennison).

The dominating influence of Ohio in national affairs was strikingly illustrated at the inauguration of President Garfield in 1881. On this occasion the retiring President, Rutherford B. Hayes of Ohio, was succeeded by another Ohio President, James A. Garfield. The oath of office was administered by Chief

Justice Morrison R. Waite of Ohio. Close by them, as the most honored spectators, stood the Secretary of the Treasury, John Sherman of Ohio; next to him the General of the Army, William Tecumseh Sherman of Ohio; and by his side, the second in command, Lieutenant-General Philip H. Sheridan, also of Ohio.



*Problem IX. What sons of Ohio have won fame in science, art, and literature*

**Artists, sculptors, scientists.** Ohio also claims many of America's foremost artists, sculptors, and scientists. The best known are Thomas Cole, a great landscape painter; James H. and William H. Beard, famous animal painters; John Quincy Adams Ward and Hiram Powers, America's foremost sculptors. Other successful artists born upon Ohio's soil, or Ohioans by residence, are Kenyon Cox, Thomas Buchanan Read, W.H. Powell, Edgar M. Ward, W. L. Sontag, Caroline S. Brooks, Carlton T. Chapman, Elizabeth Nourse, Frederick Oppen.

In the field of the drama, Ohio claims such stars as Julia Marlowe and Clara Morris; while in the world of science and invention the most eminent Ohioans are Thomas Edison (Fig. 53), Charles F. Brush, Elisha Gray, Thomas C. Mendenhall, Orville and Wilbur Wright (Fig. 54).

**Famous Ohio journalists.**

Among Ohio's noted journalists are Murat Halstead, once proprietor of the *Cincinnati Commercial*, who wrote biographies of McKinley, Dewey, and Roosevelt; Whitelaw Reid, proprietor of the *New York Tribune*,

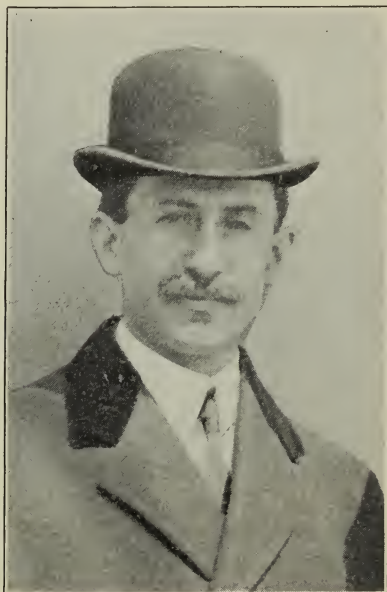


FIG. 54. Orville Wright

Orville Wright, famous American aeronaut, shares with his late brother Wilbur the honor of constructing the first successful airplane, and of making the first successful flights. He began the study of aeronautics in 1896, when the Wright brothers were engaged in building bicycles at Dayton, Ohio. In 1909 the Wright airplane was accepted by the United States government, and purchased for the Signal Corps. In the same year Orville Wright made a world's altitude record of 1637 feet

ambassador to France and Great Britain, and author of "Ohio in the War," a brilliant account of Ohio's part in the Civil War; George Kennan, who traveled extensively in Siberia and gave the world one of the earliest accounts of the exiles in that country; Davis R. Locke, former editor of the *Toledo Blade*, author



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FIG. 55. William Dean Howells

William Dean Howells, famous American novelist, was born at Martins Ferry, Ohio

of the famous "Petroleum V. Nasby Letters," written to support the Union cause during the Civil War; Albert Shaw, author of works on government, and editor of the *Review of Reviews*; Brand Whitlock, equally famous as journalist, novelist, and ambassador to Belgium.

#### Famous names in literature.

Ohio's foremost novelist is William Dean Howells (Fig. 55), whose works comprise seventy volumes of fiction, poetry, travel, history, and biography. In his boyhood days, Howells lived in Hamilton, Ohio, and his life there

furnished the theme for his interesting story "A Boy's Town." Other Ohio authors who have won national fame include Alice Cary, Phœbe Cary (Fig. 56), Coates Kinney, John James Piatt, Sarah Bryan Piatt, Albion W. Tourgée, Mary H. Catherwood, Charles Frederick Goss, Washington Gladden, John Uri Lloyd, Charles W. Chesnutt, Zane Grey, Alfred Henry Lewis, John Randolph Spears, Paul Lawrence Dunbar. Among the well-known writers of books for boys and girls are Martha Finley, Sarah Knowles Bolton, Sarah C. Woolsey (Susan Coolidge), and Josephine Scribner Gates. In the field of history, Ohio claims such noted authors as James Ford Rhodes, Hubert Howe Bancroft, Edwin E. Sparks, William M. Sloane, B. A. Hinsdale, Henry W. Elson, and J. P. Gordy.

*Problem X. How the women of Ohio have aided the progress of the state*

**The women of Ohio.** The part taken by the women of Ohio in the history and development of the state can hardly be over-estimated. That the pioneer women matched the bravery of



ALICE CARY



PHEBE CARY

FIG. 56. The Cary sisters

Both of the Cary sisters wrote poetry at an early age. In 1852 they moved from Clovernook, Ohio, to New York City, where they afterwards lived. (After illustrations in Randall and Ryan's "History of Ohio")

the men with a heroism of their own is well illustrated by the careers of Ann Bailey, Elizabeth Zane, Rebecca Williams, and Elizabeth Kenton. The first school-teacher in Ohio was a woman, Bathsheba Rouse, who was appointed to her work at Belpré in 1789. Perhaps the influence of Ohio's women can be best summed up in a single statement: They are today the instructors, in the main, of the children of the state. They teach in the little red schoolhouse which has made Ohio great, they teach in our city schools, they teach in large numbers in our colleges and universities. To this profession, which makes

the largest demands in service and self-sacrifice, and yields the smallest returns in recognition and compensation, the women of Ohio have always freely devoted their lives.

Probably the greatest blow ever struck against slavery was delivered by Harriet Beecher Stowe, who lived for many years



FIG. 57. Harriet Beecher Stowe

The first year that "Uncle Tom's Cabin" was published (1852), 300,000 copies were sold. This famous novel has been translated into nineteen different languages, and the dramatized version has probably been more frequently produced than any other play

at Cincinnati and there gained the inspiration for "Uncle Tom's Cabin" (Fig. 57). The boys who read that book learned to hate slavery, and these boys were the men who afterwards shouldered their muskets at the call of "Father Abraham." Throughout the Civil War, it was the work and sacrifice of Ohio's women at home and as nurses in the field and hospitals, as heads of relief corps and as breadwinners for their families, which enabled Ohio to send into the strife more than one half of her adult male population.

Three movements which have had a world-wide influence had their source in Ohio and were originated by Ohio women. These are (1) the Woman's Christian Temperance Union, which had its birth at Hillsboro, Ohio, with Mrs. Thompson, daughter of old Governor Trimble, as the first president; (2) the Sunday School, first organized by a noted Bible teacher, Mrs. Andrew Lake, of Marietta; (3) the woman's club movement, of which Alice Cary was the first president.

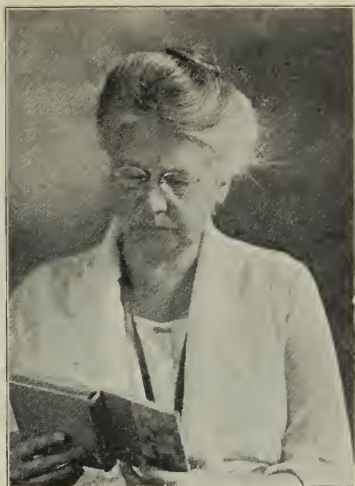
It would be difficult to measure the service to history that has been rendered by the Colonial Dames and by the Daughters of the American Revolution, two organizations which number





FLORENCE DONALDSON RICHARD

State President of the Ohio Woman's  
Christian Temperance Union



JOSEPHINE SCRIBNER GATES

Author of "Live Dolls" and other  
stories for children



KATE BROWNLEE SHERWOOD

Poet of patriotism and organizer of  
the National Woman's Relief Corps of  
the Grand Army of the Republic



HARRIET TAYLOR UPTON

As head of the Republican women, Mrs.  
Upton is vice-chairman of the National  
Executive Republican Committee

FIG. 58. Four of Ohio's noted women

in their membership thousands of Ohio women. These societies have preserved many of Ohio's historic homes and forts; they have dotted the state with tablets, bronzes, and monuments commemorative of the great deeds done on Ohio soil; they have

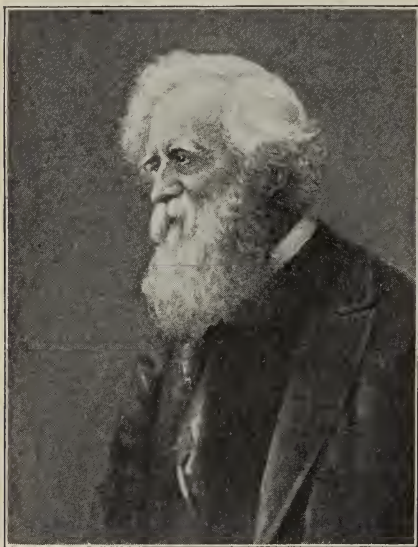


FIG. 59. Henry Howe

This famous writer traveled over the state in the years 1846-1847, gathering material for his history of Ohio. Forty years later, he made a similar tour, and published a revision of his celebrated "Historical Collections of Ohio"

kept alive in our schools the traditions and principles of American liberty. Another organization which has rendered valuable service to the state, and especially to the cause of education, is the Ohio Federation of Women's Clubs, now in its twenty-eighth year.

*Problem XI. How Ohio helped win the World War*

Our country enters the war for democracy. The United States entered the great World War on April 6, 1917, after it had become apparent that the vital interests of this country were at stake. For nearly three years, France, Great Britain, and Italy, with other allied countries, had been fighting the greatest war in history. The object of that war was to save the free nations of Europe from the aggression of a war-mad Germany aiming at world dominion. When the United States entered the struggle, Germany was at the height of her power, and was planning on a final victory within the next twelve months. Her armies then held enormous tracts of invaded territory. She had crushed Rumania and Serbia, and her iron heel was over Belgium and northern France. Moreover, by the close of 1917, Russia was

no longer on the battle line; betrayed by her leaders and torn by internal strife, she had at last deserted the Allies.

It was in this critical hour that the United States entered the war, and our immense resources in men and money soon determined the outcome. Within eighteen months from our declaration of war, this country had enrolled 4,800,000 men in all branches of the service. Of that number 2,000,000 had been landed in France, making possible the great counter offensive in which General Foch drove back the German armies in disastrous retreat. The United States expended in its supreme war effort \$24,000,000,000, or more than the total expense of the national government since its establishment in 1789. Moreover, this vast sum did not include the amount loaned to our Allies, which was nearly \$10,000,000,000.

**Ohio troops in the war.** In this world war for democracy, Ohio played a part fully equal to her past record and traditions. Our state furnished 200,293 men for the army, a quota only exceeded by the three states which surpass Ohio in population. One division—the 37th—was made up of Ohio troops drawn from our National Guard. Ohio was also represented in the famous Rainbow Division by the 4th Infantry; other Ohio men were enrolled in the 83d Division, which was assembled at Camp Sherman; while many others enlisted in the marine corps and in the regular army.

The 37th, or Buckeye, Division was organized at Camp Sheridan, Montgomery, Alabama. It was sent to France in the latter part of June, 1918, and, after a period of training in the Vosges Mountains, took part in the great Argonne-

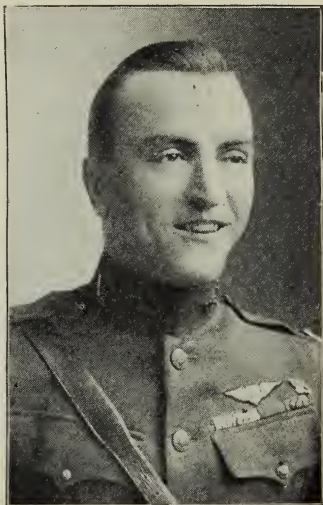


FIG. 60. Captain Rickenbacker,  
"American Ace of Aces"

Meuse offensive. Later the 37th was moved to Belgium and became part of the composite army under King Albert. This army crossed the Scheldt River, and the Buckeye Division had reached the towns of Dickele and Hindelgem when the armistice brought the fighting to a close on November 11, 1918. In all,



FIG. 61. Map showing scene of American operations in Europe

the 37th Division advanced for twenty miles against desperate resistance, capturing 1500 prisoners, together with large numbers of rifles and machine guns; its losses were 1000 men killed in battle and 5000 men wounded. Major-General Charles S. Farnsworth commanded the 37th Division during its service in France.

The 42d, or Rainbow, Division was made up of National Guard units drawn from every part of the United States. This division took part in many important engagements, including the St. Mihiel offensive, the Argonne battle, the Aisne-Marne offensive, and the splendid defense at the Marne (see Fig. 61).





FIG. 62. American soldiers saluting the statue of Washington in Paris,  
July 4, 1918

From a painting by J. F. Bouchor, official painter to the French armies

Financing the war. Immense sums of money, so large as to be almost beyond conception, were necessary for our vast military preparations. In the first year of the war our disbursements reached the startling figure of nineteen billions, or nearly five times the total cost of the Civil War. Of this immense sum,

about one third was loaned to our Allies, the remainder being actual expenditures. To raise this revenue the government resorted to taxation on a large scale. In addition to the vast revenues raised by taxation, we had to borrow still larger sums; for before the close of the year 1917, the war was costing our government fifty million dollars each day. This was done by selling bonds, war-savings stamps, and certificates, to be paid for out of future taxes. Our government wisely decided to sell its bonds directly to the people through popular subscription; and in order that they might be within reach of all, bonds were offered in denominations as small as \$50. Three great Liberty Loans, aggregating ten billion dollars, were made during the first year of the war; a fourth loan of nearly seven billions was made in 1918, and a Victory Loan of over four billions in 1919. On each occasion the people subscribed for more bonds than were offered for sale.

In money, as in men, Ohio did her full part; in each of the five loan drives our state raised more than her quota. In all, the citizens of Ohio subscribed for over one billion dollars' worth of government bonds, or about one eighteenth of the entire amount issued. Ohio's allotment in each of the five bond issues is shown in the table below.

	OHIO'S ALLOTMENT	TOTAL LOAN
First Liberty Loan . . . . .	\$126,980,950	\$1,989,455,550
Second Liberty Loan . . . . .	233,892,250	3,807,865,000
Third Liberty Loan . . . . .	225,090,050	4,175,650,050
Fourth Liberty Loan . . . . .	385,288,000	6,964,581,250
Victory Loan . . . . .	257,804,950	4,497,818,750
Total . . . . .	\$1,229,056,200	\$21,435,370,600

### TOPICS FOR SPECIAL REPORTS

1. **The Abolition Movement.** HART, A. B., *American History told by Contemporaries*, III, ch. XXVII; McLAUGHLIN, A. C., *Readings in the History of the American Nation*, chs. XXXIII-XXXIV; McMASTER, J. B., *History of the People of the United States*, V, ch. XLV; WOODBURN, J. A., *Political Parties and Party Problems in the United States*, ch. V.

2. **The Underground Railroad.** ELSON, H. W., *Side Lights on American History*, I, ch. XIV; HALSEY, F. W., *Great Epochs in American History*, VII, pp. 110-115; RANDALL and RYAN, *History of Ohio*, IV, pp. 119-148.

3. **Ohio's Part in the Civil War.**

(a) *The Campaign in West Virginia.* RANDALL and RYAN, *History of Ohio*, IV, pp. 167-169.

(b) *The Andrews Raiders.* RANDALL and RYAN, *History of Ohio*, IV, pp. 193-202.

(c) *Morgan's Raid.* RANDALL and RYAN, *History of Ohio*, IV, pp. 241-251.

4. **The Discovery of Gas and Oil in Ohio.** RANDALL and RYAN, *History of Ohio*, IV, pp. 366-370.

5. **Growth of the Factory System.** RANDALL and RYAN, *History of Ohio*, V, pp. 251-330; WRIGHT, C. D., *Industrial Evolution of the United States*, chs. X-XI.

6. **Some Great Modern Inventions.** MOWRY, W. A., *American Inventions and Inventors*, pp. 111-116, 252-297.

7. **Modern Agricultural Methods.** BOGART, E. L., *Economic History of the United States*, chs. XX, XXIII.

8. **Development of the Common-School System in Ohio.** RANDALL and RYAN, *History of Ohio*, III, pp. 367-398.

9. **Ohio and the Spanish-American War.** BARSTOW, C. L., *The Progress of a United People*, pp. 70-77; GRIFFIS, W. E., *The Romance of Conquest*, chs. XXVII-XXIX; HITCHCOCK, RIPLEY, *Decisive Battles of America*, chs. XXI-XXII; RANDALL and RYAN, *History of Ohio*, IV, pp. 415-432.

10. **Ohio's Contribution to American Literature.** RANDALL and RYAN, *History of Ohio*, V, pp. 1-84.

11. **Transportation on the Great Lakes.** RANDALL and RYAN, *History of Ohio*, V, pp. 229-250.

12. **Ohio and the World War.** BENEZET, L. P., *The Story of the Map of Europe*; MASEFIELD, JOHN, *The War and the Future*; PAGE, ARTHUR W., *Our 110 Days' Fighting*.

## CHAPTER IV

### SURFACE FEATURES

Ohio's surface features are well adapted to farming, and about 94 per cent of the land of the state is given over to agriculture. No state east of the Mississippi River has so large a percentage of land in farms. The surface of Ohio is comparatively level, the highest elevation being only 1550 feet above the sea. The larger portion of the state is less than 1000 feet in elevation, and its deepest river valleys are less than 300 feet. The surface features of the state make it the highway of commerce between the East and the West, and offer great advantages to trade, agriculture, and various industries.

The surface of Ohio has been mapped by the United States Geological Survey. The surface is blocked into rectangular or quadrangular blocks, each of which contains 222 square miles. Each of the quadrangles has been carefully surveyed, and the resulting map shows all the streams, surface features, and political divisions.

The map on page 95 (Fig. 64) is a copy of a portion of the block known as the Marietta Quadrangle, and shows the location of Marietta on the level flood plain at the junction of the Ohio and Muskingum rivers. The upland country through which these two rivers flow is indicated by the irregular lines, which are known as contour lines, or lines of equal elevation above sea level. Above this map is a block or relief drawing (Fig. 63), which shows how the surface of this same area would look if you were to view it from the upland south of the Ohio River.

The United States Geological Survey has prepared a key map of Ohio showing each quadrangle and its name. By writing to the Survey in Washington, D. C., you can secure this key map, and by locating your home on it you can find out the





FIG. 63. Relief drawing of Marietta and surrounding region

This is a relief drawing of the area shown below. Wherever the lines on the topographic map are close together, the relief drawing shows steep slopes

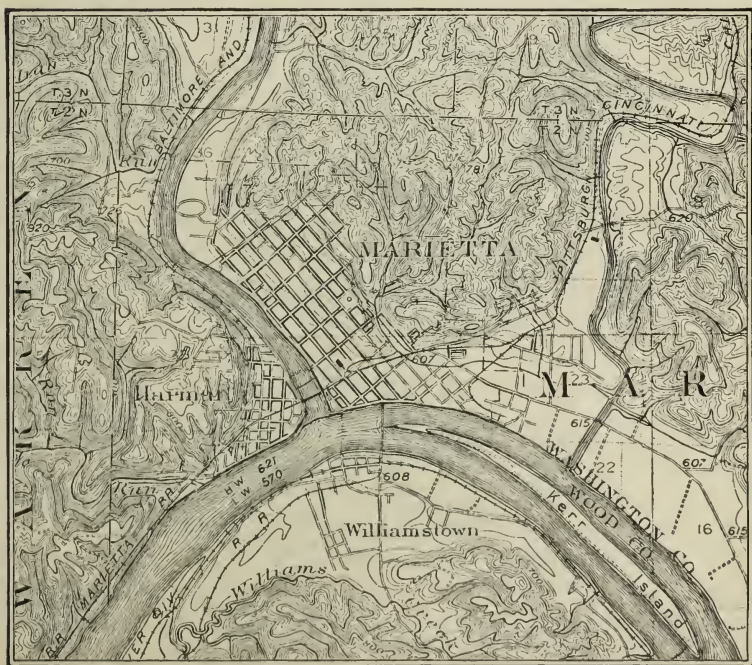


FIG. 64. Topographic map of Marietta and surrounding region

Each contour line runs through points at the same elevation above sea level

name of the quadrangle in which you live. Then, if you wish, you may send for your home quadrangle and study the way in which the surface features of your home and the surrounding country are represented on it. If you like to draw, you will enjoy trying to make a relief drawing of your home area similar to the one of Marietta.

Rivers and lakes are important in the surface features of Ohio. On a relief map of the state, trace the watershed from the northeastern corner to the middle of the western boundary of the state. North of this watershed is the Lake Erie drainage basin, and south of it is the Ohio drainage basin. (See map between pages 106 and 107.) The more important rivers of the state are the Muskingum, Mahoning, Hocking, Scioto, Miami, and Little Miami. These streams are all tributaries of the Ohio River.

The Ohio River forms the irregular southern boundary line of the state. It flows in a narrow valley not over two miles wide in any part, and from 300 to 400 feet deep. The high bluffs, the rolling hills, and the smooth-flowing stream are so picturesque that the early French explorers called it "La Belle Rivière," meaning "the beautiful river." The Ohio River is an important historical highway, and, as we have already learned, it played a very significant part in the early growth and development of the state. *Does the southern boundary of Ohio extend to the middle of the river or does Ohio include the Ohio River? Explain.*

The largest rivers of the Lake Erie basin are the Maumee, Sandusky, Cuyahoga, and Grand. These rivers all empty into Lake Erie. The rivers of northeastern Ohio have cut deep valleys, and some have waterfalls in their courses. Lake Erie is a water boundary of great influence in Ohio's commerce and trade. It is the connecting link between the East and the West. With the other Great Lakes it provides an open water highway between the coal fields of the state and the iron mines bordering Lake Superior. The low southwestern shore of Lake Erie is irregular and contains Maumee and Sandusky bays. Put in Bay Island is one of a small group of islands that stretch nearly

across the western end of the lake. The eastern portion of the shore line of Lake Erie in Ohio consists of high bluffs with few natural harbors. *How has Cleveland developed a harbor?*

The fish found in the waters of Lake Erie are the basis of a fishing industry which centers in the lake ports—Port Clinton, Sandusky, Toledo, and Cleveland. Some of the best fresh-water

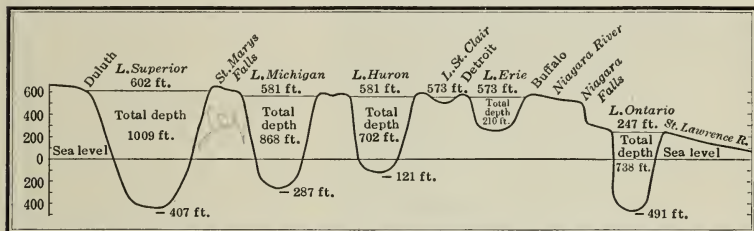


FIG. 65. Profile of the Great Lakes

This diagram shows the total depth of each of the Great Lakes and the height of its surface above sea level. Which lake has the highest elevation above sea level? Which is the deepest lake? the second deepest? Are all the lake bottoms below sea level?

What river carries the lake waters to the ocean?

fishing in the United States is found in Lake Erie, where white-fish, lake trout, blue pike, perch, herring, catfish, and pickerel abound.

The surface features of Ohio have been formed by the slow work of rivers, glaciers, and lakes, acting upon the rock formation of limestone, sandstone, and shale. The process of formation has been very slow and has extended through a long period of time. Gradually the limestone of the western portion of the state and the sandstone and shale of the eastern portion have been made into soil, and the surface features as we know them today have come into existence. The surface of Ohio is divided naturally into the following regions: (1) the Lake Plain, (2) the Allegheny Plateau, (3) the Central Plain. These regions are so different in their soils, surface features, and influence upon occupations and industries, that we shall wish to find out how each region was formed, and to study its influence upon the people who live in it. We shall then understand how Ohio's natural features have influenced the development of the state.



*Problem I. To learn something of the rocks and soils of Ohio*

When you look at the hills and streams you may think that they have always existed and that they have always looked the same; this is not the case, for our hills and streams have

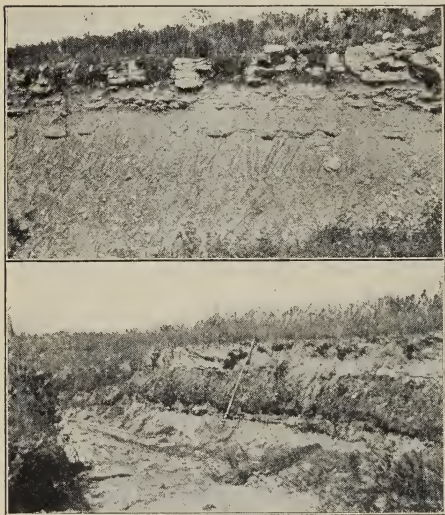


FIG. 66. How soil is made

These pictures show how roots growing in the crevices of partly disintegrated rock assist in weathering the rock, thus forming soil. (From Waters's "The Essentials of Agriculture")

a history as well as our people. The story of the surface of the land covers a much longer time than that of the people of Ohio. A little observation in your vicinity will show you how to read this interesting story of the land. Select a cut which exposes several feet of the soil. Examine the soil carefully and you will find that it contains rocks, sand, pebbles, clay, and other materials. You may see these different

soils arranged in layers; such soil is said to be stratified, and has been formed by rivers, lakes, and streams. This kind of soil is very common along the lake shore and in the river valleys.

It may be possible to observe in your neighborhood a rock cliff or a bank showing the rock layers. These rock layers are generally horizontal, and they may be of any of the following kinds of rock: limestone, sandstone, shale, or coal. These layers you should study carefully, for their history is older than that of Lake Erie or the Ohio River. If you search carefully, you may find shells and other remains of plants and animals which lived in the sea that covered Ohio long before the present surface was formed. These remains are called fossils. It may



be that the rock layer consists of shale, which was formed of clay that was once mud or silt in the sea bottom. Perhaps the ledge which you observe is a hard sandstone of red, yellow, or drab color. This sandstone was formed of grains of sea sand which have been united by a natural cement to form a stone.

At a rock ledge it is easy to see how soil is made from rock. You will observe that the edges of the rock layers are being softened and broken by frost, rain, and the weather changes (Fig. 66). At the bottom of the ledge you will find some of the material that the weather has broken from the cliff. The finer part of this rock material is carried away by the streams, and the coarser material is moved only by the floods.



FIG. 67. The continental glacier

This map shows the portion of North America which was covered by ice in the glacial period

The place you select to observe soil may be a mass of hard clay, soft sand, gravel, or rocks of various sizes so thoroughly mixed together that no layers can be seen. This kind of soil is very common north of the dotted line on the map above which shows the southern limit of glaciation.

This line marks the southernmost extent of the great continental ice-sheet, or glacier, that moved slowly southward from Canada, carrying beneath it great masses of rock material (Fig. 67). The different rocks were crushed and mixed together by the glacier in its southward movement. Later, as the

ice melted and gradually disappeared, this glacial rock material or drift, as it is called, was dropped, forming rolling hills or moraines over the central and northeastern portions of Ohio. In the glacial soil you are very likely to find stones showing scratches or parallel grooves formed as the rock was carried and pushed along by the great mass of ice.

The glacial drift contains large boulders of granite and other crystalline rocks, which were brought by the ice-sheet from places far to the north in Canada. These granite boulders are frequently of immense size, and are so abundant in some places as to hinder cultivation. They are composed of rock material that is not native to Ohio, and wherever found, indicate that the surface was once covered by the great glacier.

*Problem II. To study the surface features of the region in which you live*

The map between pages 106 and 107 shows the three natural regions in Ohio to be the Lake Plain, the Allegheny Plateau, and the Central Plain. In which region do you live? What surface features have you observed near your home? Select some particularly interesting feature of your region, such as a waterfall, a cliff, a gorge, a sand bar, or a river, and try to explain its origin. Make a collection of pictures which illustrate the features of your region. Draw a diagram of some special feature. Are there some surface features that are found in many places throughout your neighborhood? Can you prove by outdoor study that you do or do not live in the part of the state that was once covered by the continental ice-sheet?

*Problem III. To understand the two parts of the Allegheny Plateau in Ohio*

The Allegheny Plateau of eastern and southern Ohio is part of the Allegheny Plateau of New York, Pennsylvania, West Virginia, and Kentucky. This western portion of the Allegheny Plateau in Ohio is separated from the eastern portion by the Ohio River and its branches.

Before the glacial time the Allegheny Plateau in Ohio was "a hill and valley" region. The rivers and streams had carved out many valleys in the plateau surface. The glacier left vast quantities of rock material (Fig. 68) which partially or wholly filled the valleys, giving the northern portion of the plateau a



FIG. 68. Rock material left by the glacier

(Photograph by Dr. G. E. Nichols. From Caldwell and Eikenberry's "General Science")

different surface from the southern part. *Trace on the map between pages 106 and 107 the extent of the glacier in Ohio.* This line divides the Allegheny Plateau into two parts, of which the southern is the hill-and-valley portion, and the northern is the glaciated region of rolling hills and clay soil. The difference between these two portions of the Allegheny Plateau in Ohio may be very clearly seen at Canton. North of this city the rolling hills are of glacial formation, while to the south the deep-cut valleys and the steep hills belong to the hill-and-valley portion of the plateau. In the glaciated part of this plateau, the former river valleys have been filled with glacial material, and many of



the streams which occupied those old valleys have been turned from their courses. The Cuyahoga River has its source north of its mouth, and the form of the stream is that of a horseshoe. This irregular form is due to changes brought about by the glacier. The Grand River is another example of these irregular



FIG. 69. Wooded pasture in the Western Reserve

What are the advantages of a wooded pasture as compared with an open pasture?

Note that the timber is original growth. What kind of trees are these?

streams in northern Ohio. Nearly all the streams have waterfalls and are now cutting deep valleys. *Is there a stream of this kind in your locality?*

The soil of the northern half of the Allegheny Plateau consists of glacial material, and the rolling hills are composed of hard clay filled with many boulders. This is a soil better suited to pasture land than to the cultivation of farm crops (Fig. 69). The northern edge of the Allegheny Plateau is within sight of Lake Erie for a long distance. This highland averages about 500 feet above Lake Erie.



Streams flowing from the plateau to the lower plain usually cut deep valleys and often form waterfalls. The deep valleys of the Cuyahoga and Grand rivers form natural highways along which railroads have been built, and have promoted the development of large cities in this part of the state.



FIG. 70. Zanesville flood of 1913

This picture gives some idea of the havoc wrought by the Muskingum River in time of flood. The damage caused by this flood was repaired in a remarkably short time

In the southern portion of the Allegheny Plateau the rivers have had a much longer time to cut down their courses, and the surface consists of many small hills and valleys. It is well named the hill-and-valley part of Ohio. The river valleys are narrow and deep, affording the only convenient routes for travel. These valleys are shown on the map between pages 106 and 107. The longest is the valley of the Muskingum River and its chief tributary the Tuscarawas, which extends from near Akron to Marietta on the Ohio River, with a small branch valley west to Newark. In this valley are the principal lines of transportation, with the cities of Newark, Zanesville, New Philadelphia, Coshocton, and Marietta. The sketch of Marietta

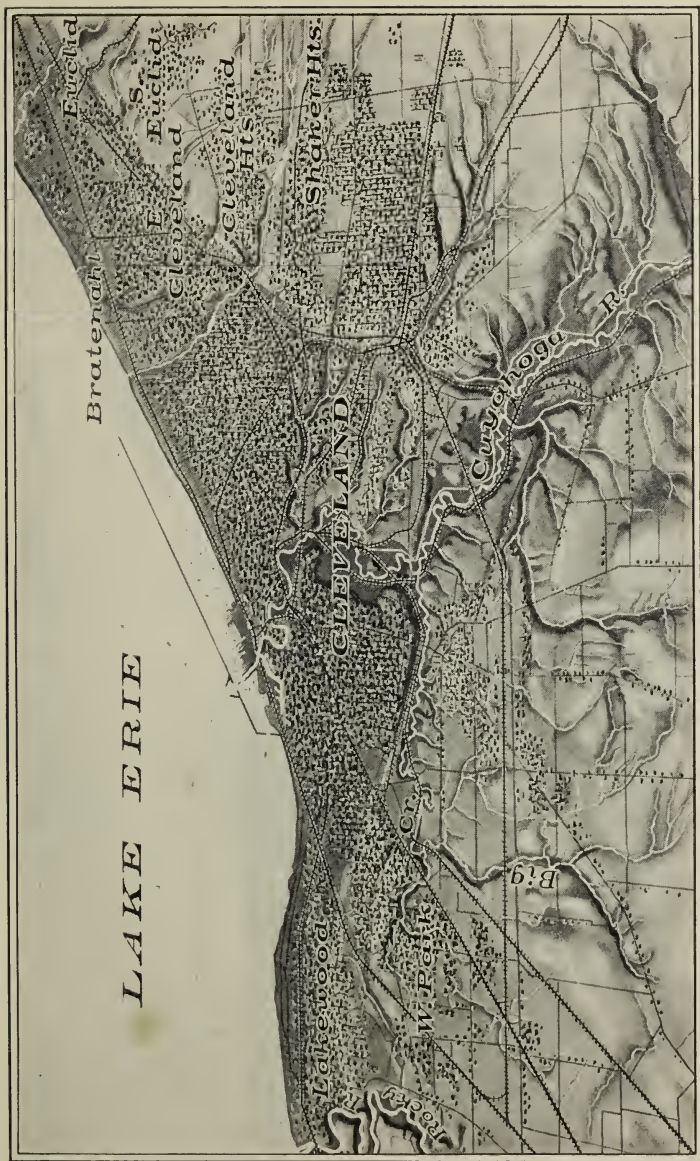
(Fig. 63) shows its site at the junction of the Muskingum River with the Ohio. The valley of the Hocking extends to the Ohio, and contains railroad lines with the cities of Lancaster, Logan, and Athens. The valley of the Scioto extends southward from Columbus, where it is broad, to Chillicothe, where it becomes narrow as the river enters the plateau region. The railroad follows this valley from Chillicothe to Portsmouth on the Ohio.

In the hill-and-valley region of the Allegheny Plateau the rainfall is drained from the land rapidly, and for this reason floods are common in all of the streams (Fig. 70). These floods remove the fine and fertile soil. This loss of the fertile soil and the uneven character of the surface make agriculture unsatisfactory except in the river bottoms, where the most fertile lands are found. The valley of the Ohio River is utilized for railroads and as a highway of travel across the Allegheny Plateau in the same manner as the smaller valleys.

*Problem IV. To learn about the origin and surface of the Lake Plain*

The Lake Plain in Ohio borders the southern shore of Lake Erie. It was formed when the waters of Lake Erie stood at a higher level and covered all of the region shown as the "Lake Plain" on the map. At that time the areas now occupied by Toledo, Cleveland, Sandusky, and the other shore-line cities were below the waters of the lake. The Lake Plain is nearly level and extends across the northern part of the state, having the widest extent in northwestern Ohio and narrowing greatly to the northeast. (See map between pages 106 and 107.)

The ancient shore of Lake Erie is marked by ridges of sand which were made by the lake when it stood at a higher level. These ancient beach lines extend across the Lake Plain roughly parallel to the present shore of Lake Erie. In many places these ridges have been used for roads, hence called ridge roads. Near Elyria there are three ridges, called North Ridge, Middle Ridge, and South Ridge. In many places on the Lake Plain these ridges, which are unbroken for miles, have been



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FIG. 71. Airplane view showing location of Cleveland on the level lake plain



used from the earliest times as highways—first as Indian trails, later as wagon roads, and now as the routes of electric lines and railroads. Between Cleveland and Ashtabula are several ridges which are continuous for many miles.

The Lake Plain consists largely of sandy soil with clay and silt in some places. These soils are distributed in such a way as to form a very smooth surface. Cedar Point consists largely of sand formed by the lake currents into a long bar which may sometime extend across Sandusky Bay.

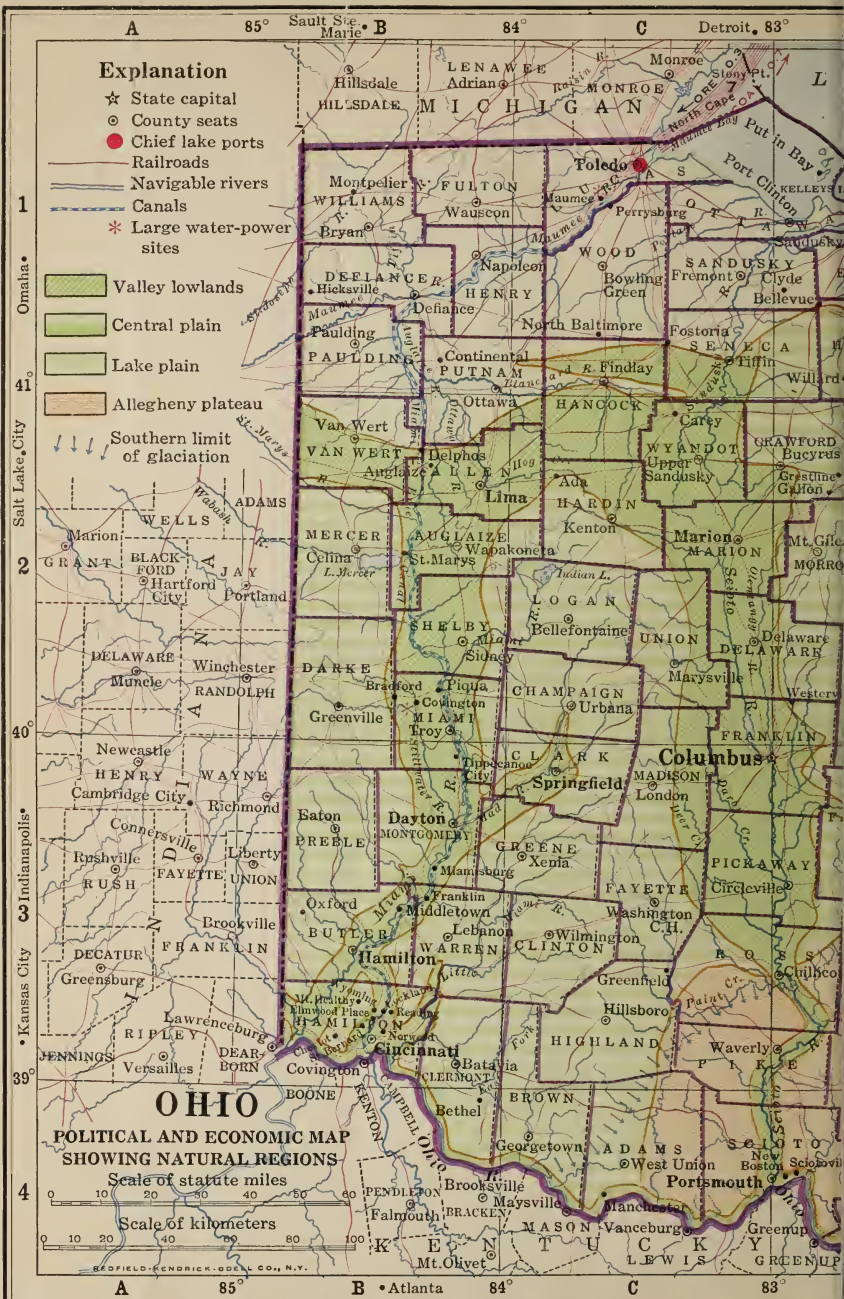
The Lake Plain with its level surface offers good opportunities for land transportation along the southern shore of Lake Erie. Railroad lines and roads cross the plain in all directions (Fig. 71). The ease with which transportation facilities can be constructed is one of the most important factors in the great industrial growth of this region.

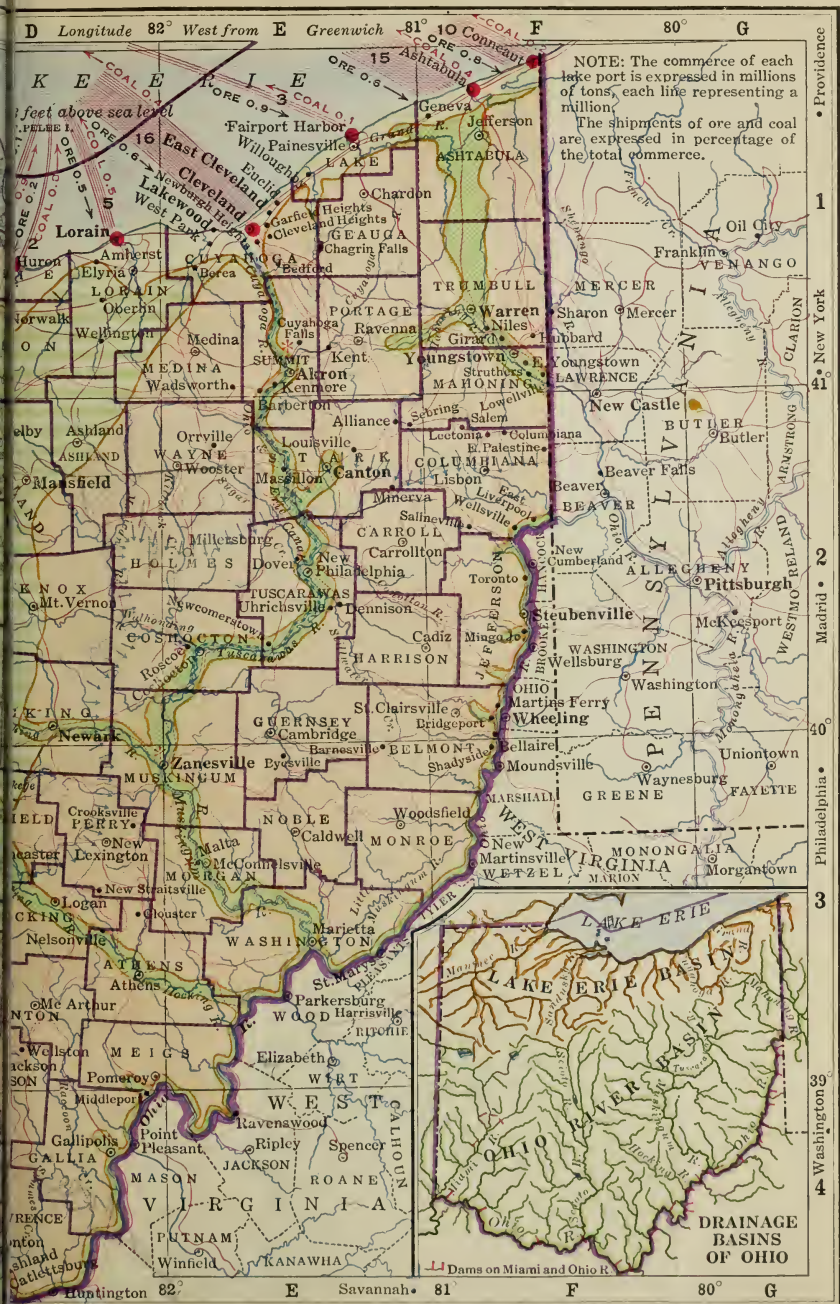
*Problem V. To learn about the surface features of the Central Plain, the largest and most important region of Ohio*

The Central Plain of central and western Ohio forms the most fertile as well as the largest region in the state. It consists of gently rolling hills, wide river valleys, and broad stretches of level plain. The surface features are due largely to the glacial deposits (Fig. 72). In the central portion of this region the gently rolling hills are moraines, which were deposited along the edge of the ice-sheet as it retreated northward. At Bellefontaine, in Logan County, the highest of these hills reaches an elevation of 1550 feet above sea level, which is the highest elevation in the state. The lowest elevation in the state is at Cincinnati, where at the period of low water in the Ohio River the lowest land is 440 feet above sea level. The divide between the Lake Erie and the Ohio drainage basins is rather flat and not easily seen in the Central Plain. Near the headwaters of the Miami River in Hardin, Allen, and Auglaize counties is the site of an extensive swamp, which has been drained and reclaimed into very fertile land. *Name some of the crops to which this drained swamp land is well adapted.*













The river valleys which extend north and south across the Central Plain are very broad. The valleys of the Scioto and Miami rivers contain fertile limestone soils. In the Miami River Valley, the limestone soils form the tobacco lands. These wide valleys are the routes of railroads, canals, and other lines



FIG. 72. Devil's Pot, Circleville, Ohio

Pickaway County has many interesting geological formations. This glacial or "devil's" pot, as it is called, lies two miles northwest of Circleville. It is one of the largest glacial pots in the state, with a diameter of 1175 feet, and a depth of about 75 feet. This formation, like the adjacent gravel ridge which extends for miles along the Scioto River, was left many ages ago by the glaciers which moved down from the Far North

of transportation which connect Lake Erie and the Ohio River, and in them are the industrial centers and manufacturing districts of the Central Plain. In the Miami Valley are Sidney, Troy, Dayton, Middletown, and Hamilton. In the Scioto Valley are Upper Sandusky, Marion, Columbus, Circleville, and Chillicothe. Locate these cities on the map between pages 106 and 107.

The surface features of the Central Plain are like those of the prairies in the states to the west. The fertile soils and the gently rolling character of the surface make this region the

greatest agricultural section of Ohio. The farms here have the highest value per acre of any in the state. This region forms the eastern end of the great corn belt of the United States, and in addition to corn, large crops of wheat and other grains are raised. We shall study more about farming in this region in the chapter on agriculture.

### SPECIAL PROBLEMS FOR INVESTIGATION

1. What is a glacier? How do glaciers affect the soil? Is the soil of your region of glacial origin?
2. What kinds of soil in your community are considered the most valuable?
3. Is most of the soil in your community of this best type? How does the type of soil affect the value of farm lands?
4. Are the drained lowlands more fertile than the highlands? Why?
5. Why should artificial drainage be used in most soils? To what extent is artificial drainage used in your community?
6. Why is it desirable to maintain trees on steep slopes? Brush is sometimes thrown into a gully to check washing. How does it accomplish this?
7. Are there places in your community which illustrate loss of soil by erosion?
8. Why is the soil of lowlands, such as bottom lands along rivers, usually more fertile than upland soil?
9. What was the native plant covering of the region in which you live? How much of this native plant covering remains?
10. Are there any areas in your community which might have been more valuable if left covered by native vegetation?
11. Make a list of the uses of the plants which you find in your community.
12. What industries in your community depend mainly upon plants for their existence? Which do not depend upon plants at all?
13. How do bacteria affect the supply of nitrogen in soils?
14. Why are bacteria necessary to the best growth of clover and alfalfa?

### AIDS TO THE STUDY OF THE PROBLEMS

CALDWELL and EIKENBERRY, *General Science*, pp. 279-327.

ATWOOD, WALLACE W., *New Geography*, Book Two, pp. 278-285.

## CHAPTER V

### WEATHER AND CLIMATE

#### *Problem I. Why people are interested in weather changes*

The weather is the one subject that we all talk about. A few people converse on music or art, many discuss baseball and the movies, but all of us talk about the weather—our universal, unfailing topic of conversation. In the summer months how many people do you suppose ask one another, "Isn't it warm today?" Or on cloudy days what is the remark you are sure to hear? This abiding interest in the weather is due to the fact that its changes influence us so greatly, both in our work and play. A rainy afternoon may mean no ball game, a keen disappointment to many who live in the city because it interferes with their play; but that same rain may prove a boon to the farmers of the surrounding country because it aids their work. So, too, the hot days that cause us some discomfort may be the best thing in the world for growing corn. On the whole, Nature provides weather changes wisely with reference to all our activities,—for the planting, growing, and harvesting of crops, for work and study in school, as well as for skating, baseball, and swimming.

*How does the weather affect your work? your play? What is the best temperature for work and play? How do weather changes influence what we wear and what we eat?*

#### *Problem II. How the Weather Bureau makes observations and issues weather forecasts*

For hundreds of years, people relied for weather information either upon their own observations or upon almanacs. The importance of having definite information about the weather led the United States government in 1870 to establish the

Weather Bureau at Washington, with two hundred regular observation stations scattered over the country (Fig. 73). These stations observe the daily weather, make forecasts or predictions of the weather conditions that will prevail during the next twenty-four hours, and issue warnings in case of storms, frosts,

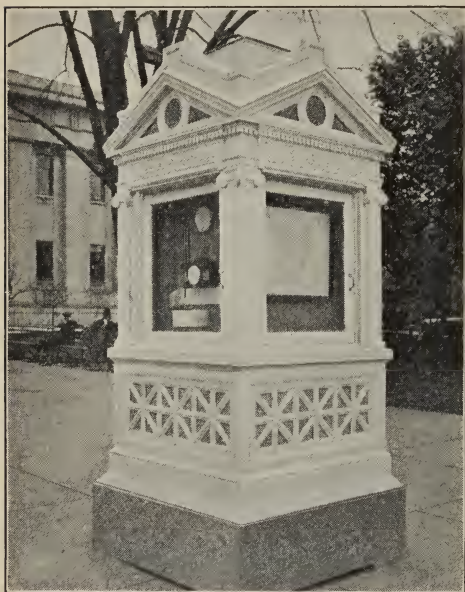


FIG. 73. United States Weather Bureau Station, Columbus, Ohio

and floods. The daily weather report gives the current temperature, also the high and low temperature since the preceding observation, the direction of the wind and its velocity, and the amount of rain or snow since the last observation. These items are telegraphed to the central office at Washington and to the central forecast stations at Chicago, Denver, New Orleans, and San Francisco, where forecasts for these respective districts are made. The

district forecasts are then published in the newspapers, and are also sent out by telegraph, telephone, wireless, and mail.

In addition to weather forecasts, the larger stations distribute maps which show weather conditions in graphic form. Storm signals are displayed at 300 points along the Atlantic, Pacific, and Gulf coasts, also on the shores of the Great Lakes, including every important port and harbor. The importance of this service to commerce can hardly be overestimated; for example, in the case of practically every dangerous storm that has occurred on Lake Erie for many years, ample warnings have been issued from twelve to twenty-four hours in advance.



*Problem III. How climate is determined by three chief factors*

There is a difference between weather and climate. Weather refers to the general atmospheric conditions at a definite time, including temperature, rainfall, clouds and sunshine, humidity, and winds. It varies from day to day, whereas climate denotes the prevailing conditions of the atmosphere over a period of years. Hence climate is sometimes called the average weather conditions. The three chief factors which determine the climate of any region are (1) temperature, (2) rainfall, and (3) winds.

*Problem IV. How the position of the sun affects the temperature of Ohio*

The climate of Ohio resembles that of the other northern states of the Mississippi Basin. The fortieth parallel passes through the central part of the state, and this latitude insures long days in summer, with abundant warmth and sunshine for the growing of staple food crops. In our study of geography we learned that summer heat in this latitude is due (1) to the high altitude of the sun above the horizon, giving rays more nearly vertical, which are scattered over a smaller amount of surface; and (2) to the long days and short nights, since during the long days more heat is received than is lost during the short nights. The reverse of these conditions accounts for the low temperature of our winters, although the earth is then actually 3,000,000 miles nearer the sun than in summer.

The variation of the angle at which the sun's rays strike the earth at different times, as well as the unequal length of days and nights, is the result of the inclination of the axis on which the earth rotates as it revolves around the sun (see Fig. 74). In the position of the earth on June 21, more than one half of every parallel in the northern hemisphere is illuminated; hence the days are more than twelve hours long and the nights correspondingly shorter. In the latitude of Ohio the sun is 72 degrees above the horizon on June 21, and this day has the most

sunshine of the entire year. On December 21 the sun is only 25 degrees above the horizon, and this is the shortest day of the year.

July, our warmest month, has 461 hours of sunshine. However, it is well to remember that these hours of sunshine are interfered with by clouds and storms. In Cleveland the total hours of possible sunshine for the entire year are 4457, but the

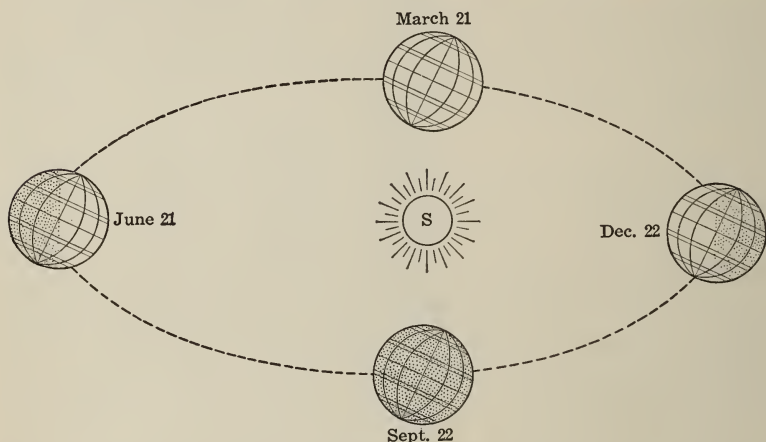


FIG. 74. Diagram showing position of the earth with reference to the sun on four dates of the year. The apparent changes in the sun's position are due to the movement of the earth around the sun and to the inclination of the earth's axis. We say that the sun rises and sets, but the fact is that these apparent changes are due to the motion of the earth

actual hours of sunshine in one year were 2367. The summer days are 18 minutes longer in northern Ohio than in southern Ohio because of the difference in latitude, while the winter days are 12 minutes shorter in northern Ohio. The temperature of a place varies not only with the sunshine but with the presence of clouds and storms which shut off the hours of possible sunshine.

*Which months have the most suitable temperature for outdoor work? Why not play baseball in the fall and football in the spring?*

**Problem V. How changes in temperature affect farming and other occupations**

The average annual temperature for the state of Ohio as a whole is about 51 degrees. The highest temperature is 55 degrees in the Ohio Valley near Cincinnati and Portsmouth. The

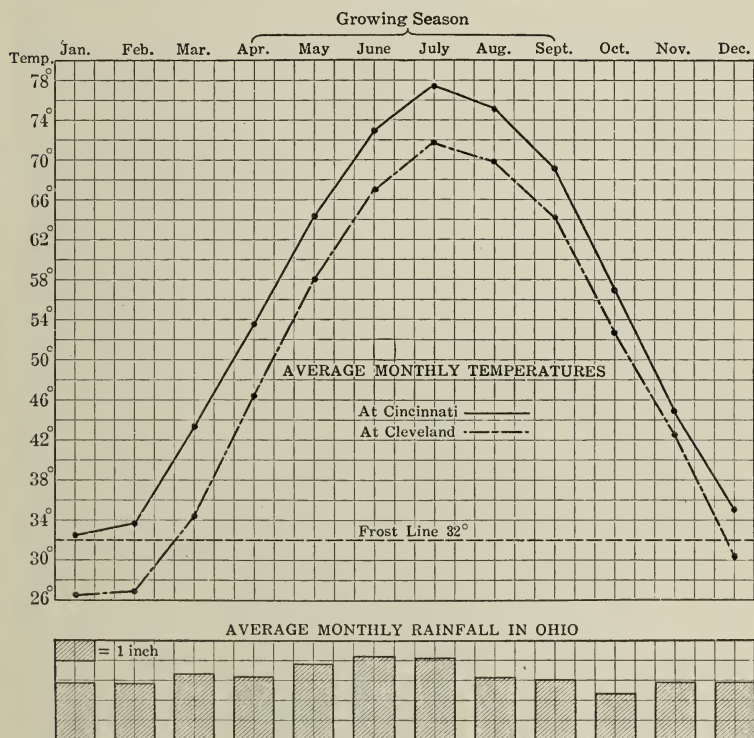


FIG. 75. Average monthly temperatures in Cleveland and Cincinnati and average monthly rainfall in Ohio

coldest portions of the state are in Lake and Portage counties, with an average annual temperature of 48 degrees. *Can you explain the reason for the difference in temperature between northern and southern Ohio?*

The land south of Lake Erie has its extremes in temperature modified by the lake influence. Water absorbs heat more

slowly than the land, and a hot day in summer is warmer a short distance inland than over the lake. In winter the water holds the heat which has been absorbed and gives it out slowly. The late fall days are warmer nearer the lake than inland. Hence the lake region has a more uniform temperature for the growing season. This modifying effect of the lake upon the temperature determines the fruit-growing belt, which is located along the southern shore of Lake Erie. The winter and summer temperatures of the lake cities are not so extreme as the interior cities. (See graph, Fig. 75.)

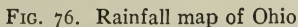
July is our warmest and January our coldest month, taking the average for a long period of years. The greatest variation in temperature is in the months of January and February. The winter thaws come with warm south winds, and are followed by cold waves bringing full winds and low temperatures. These rapid changes in temperature affect the health in a marked degree. Colds, chills, pneumonia, influenza, and diphtheria are prevalent during this season, and the general efficiency of people is considerably lowered.

Frosts determine the growing season for all crops. After the last spring frosts the planting begins. The growing season extends to the first fall frost. *Find the date of the last spring frost and the first fall frost in your locality, and determine the number of days in the growing season.* The shortest growing season in Ohio is in the highlands of Trumbull, Mahoning, and Columbiana counties. Southern Ohio has an average growing season of from 160 to 170 days, while the land on the southern shore of Lake Erie has a growing season of from 180 to 200 days. The fall frosts occur in October, but the influence of Lake Erie delays the effects for more than two weeks, thus protecting the fruit and other late fall crops. The change of temperature from summer to winter causes many changes in occupations. Lake navigation closes, farm labor decreases, and other outdoor occupations are temporarily discontinued.

*For how long a period is navigation on Lake Erie closed by ice each year? How does winter temperature affect the work of the mason? of the carpenter? of the painter?*



The moisture of the atmosphere is essential to all animals and plants, for without it no life could exist. Everywhere in



the world, even in desert regions, the atmosphere contains some moisture; and anything that will cool the air so as to cause it to condense its moisture will produce rainfall. Moisture furnishes the rain and snow which supply all springs and rivers,

and moisture helps to absorb the heat radiated from the sun and the earth. All of the moisture that comes to the surface of the earth in the form of rain, snow, fog, dew, hail, or sleet is called rainfall. Rainfall is measured by catching the rain in a vessel with vertical sides and measuring the depth of the



FIG. 77. Snow scene in a Cleveland park

Is the snowfall along the shore of Lake Erie heavier or lighter than in central Ohio?

water. If the moisture is in the form of snow the snow is melted, and the measure of the water thus obtained is counted as rainfall. An annual rainfall of 50 inches is considered large, and at least 20 inches is usually necessary to insure good crops.

In Ohio the average annual rainfall is 37 inches, of which one seventh falls in the form of snow. As may be seen from the map (Fig. 76), this rainfall is not uniformly distributed. The heaviest rainfall occurs along a portion of the Ohio River, and also in the extreme northeastern section of the state. The least

rainfall is in the southwestern corner of the state and on the Lake Plain. Portsmouth on the Ohio River has an average annual rainfall of 57.5 inches; Toledo, located a few miles from Lake Erie, reports an annual average of 31.7 inches.

June and July are the rainiest months of the year, September and October the driest. One half of the rain falls during the growing season, a condition favorable to agriculture (see Fig. 75). Ohio's principal farm crop, corn, is closely dependent upon rainfall. If the rainfall in July is less than three inches the corn yield is 30 bushels to the acre, whereas if the July rainfall is five inches or more the corn yield is 38 bushels to the acre. *At the present market price of corn, what difference would this make to the farmer who grows one hundred acres of corn?*

The snowfall in Ohio is always heaviest in the highlands of northeastern Ohio (Fig. 77), and least in the lowest portion of the Ohio Valley. The melting of the snow combined with rainfall sometimes gives rise to destructive floods along the Ohio River and its tributaries.

#### *Problem VII. How Ohio is guarding against floods*

Ohio has suffered much from destructive floods. Especially was the flood of 1913 one that did great damage. This flood was particularly disastrous in the Miami Valley section, but was by no means confined to this locality. It was more or less general throughout the state. The cities that suffered most were Dayton, Hamilton, Piqua, Troy, Middletown, Franklin, and Miamisburg, all located in the Miami Valley, and Tiffin in the northwestern part of the state. In Dayton the river rose to 29 feet, which is 11 feet above the average high water of the river. To prevent the recurrence of floods in the Miami Valley, an extensive system of dams and reservoirs has been constructed to control the surplus water (Figs. 78, 79). The estimated cost of this construction is \$33,000,000, which is less than one half the damage done in Ohio in three days of 1913. The future floods in the Miami Conservancy District will be controlled by a system of levees and reservoirs.



*Problem VIII. How winds affect our daily weather*

Air in motion is spoken of as wind. Wind is the most varying of all weather elements. It is constantly shifting its direction. Ohio is located in the belt of prevailing westerlies, or winds which commonly blow from the southwest. In these winds there are whirling storms called the "high" and "low"



FIG. 78. The Germantown dam, below Dayton, Ohio

This picture shows the process by which dams are constructed. The material is being dumped from railroad cars into the "hog box," where hydraulic giants playing upon the mass wash it to the dredge pumps. These dredge pumps, located in the buildings at the left of the picture, pick up this material together with the water, and pump it all through 15-inch pipe lines into the embankment of the dam

areas, and they are so named from the barometric pressure of the atmosphere at their centers. The low areas have a low air pressure as indicated by the barometer, and the high areas have a high air pressure. These areas move from west to east across the United States at the rate of about 600 miles each day, and they cause important changes in our weather. When a low area passes over Ohio the weather is warmer and cloudy, generally with some precipitation. The high area brings a lower temperature, with a clear sky. These weather changes are stimulating



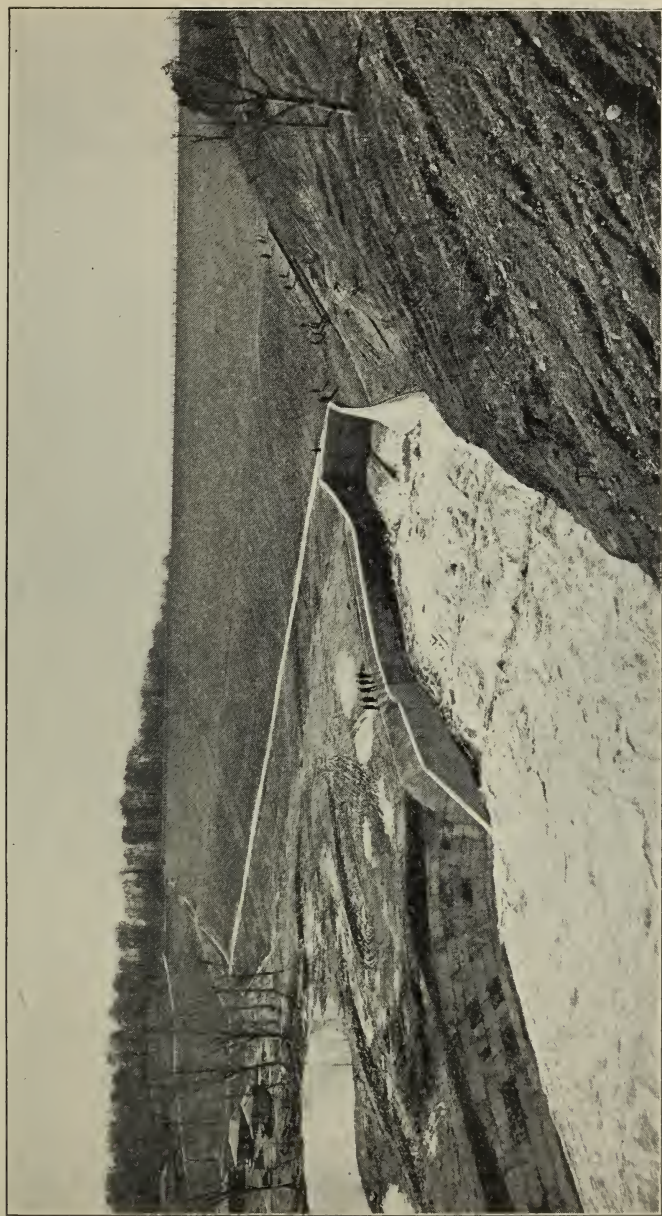


FIG. 79. The completed Germantown dam, below Dayton, Ohio

and generally enjoyable, except when the high area brings a cold wave or blizzard, or when the low area brings a hot wave.

Ohio's lake district has a land and sea breeze in the summer, while in the deeper, narrow valleys of southeastern Ohio there is a distinct valley breeze. The fruit orchards on the slope of the valleys of southeastern Ohio are protected from frosts by the cold-air drainage which carries the cold air to the lower parts of the valley. Windstorms frequently do considerable damage to telephone and telegraph lines, but Ohio does not have the heavy windstorms which sometimes cause havoc on the western plains.

The Weather Bureau carefully observes the progress of storms across the United States. When a threatening storm approaches the Great Lakes all vessels are notified by wireless, and in this way lives and property are saved from destruction. The storm warnings are also the means of saving perishable products which are in transit on the railroads or interurbans.

#### SPECIAL PROBLEMS FOR INVESTIGATION

1. Is the distance from the sun in your locality the same in the morning as at noon?
2. How can you account for differences in temperature between morning and noon, and noon and evening?
3. Of what value are weather reports to your neighborhood?
4. What causes the hot waves that sometimes sweep over large portions of the Mississippi Valley?
5. Study a rainfall map of the United States and determine the relation between the regions of greatest rainfall and the regions of greatest crop production.
6. Why is it important to crops that the rainfall should be distributed over the entire year?
7. Why may one shore of a lake be much better for fruit-growing than another?

#### AIDS TO THE STUDY OF THE PROBLEMS

ATWOOD, WALLACE W., *New Geography*, Book Two, pp. 268-276.  
 CALDWELL and EIKENBERRY, *General Science*, chs. III, IV, XII.

## CHAPTER VI

### AGRICULTURE

#### *Problem I. How the early settlers met the conditions of pioneer life*

Ohio was settled by farmers. Our early pioneers came here to establish homes in the wilderness. To do this they had many hardships to endure and many difficulties to overcome. Dense forests covered the entire state, and these had to be removed before the soil could be cultivated. Indians and wild animals often endangered the settlers.

The early forests furnished material for cabins, fences, and fuel, but after these were supplied the timber was of very little value to the pioneer farmer. He found it necessary to fell the large trees of oak, maple, ash, walnut, elm, and hickory, then cut them into logs which were rolled into heaps and burned. These logs, if available today, would be of great value. As it is, the forests of Ohio yield less than one fourth of the entire amount of hard wood necessary for our building and domestic uses. No one who lives today can appreciate the hard labor that the early farmer gave to clearing and preparing the land for cultivation. To the sturdy backwoodsmen who established homes and created farms we owe a great debt of gratitude.

Early farming in Ohio was crude and on a limited scale. Live stock consisted of cows, horses, hogs, and sheep. The early settlers gave less care to these animals than is given today, not from choice but because it was impossible to care for them as we do. The sheep were in constant danger from dogs and wild animals. Oxen were used for such heavy work as drawing the plow, rolling logs, and dragging the heavy wagons, sleds, or stone boats over almost impassable roads.



The early farms were small, usually consisting of from three to five acres of cleared land in the midst of the woods. Each little farm was made to produce the food and clothing needed for the family. *What foods did these pioneer families have?* Flax and hemp were frequently grown, to be mixed with wool



FIG. 80. Pioneer log cabin

Except for the roof, which has been rebuilt, this is a typical log cabin of pioneer days. After looking at this picture, read the description of the early log cabin in the text

and cotton for clothing. Skins of wild animals were used for caps, mittens, boots, and coats. The farmer or some traveling shoemaker made the shoes for the entire family.

The pioneer home was a log cabin, usually located near a spring, and if possible near a trail or road. The first cabins were built of round logs or of roughly squared timbers (Fig. 80). The cracks between the logs were chinked with wedges of wood and daubed with clay. The roof was covered by clapboards or by thatch supported by poles. A log shutter was fixed at the



opening left for a window, and a bark door hung on straps completed the home. A platform about two feet high placed along the wall and supported at the outer edge by strong posts formed a bedstead, while hemlock boughs served for the mattress. It was not a soft one, but there was a popular frontier saying that "a hard day's work makes a soft bed."

The kitchen, which was also the living room, was the most cheerful and homelike room in the house. Its most attractive feature was the kitchen fireplace. In all the early houses immense chimneys were built, usually of stone, and whole logs could be burned on the andirons within the spacious fireplace. Sometimes there were seats within the chimney on either side, where the entire family could sit and watch the sparks fly up the chimney. The primitive method of roasting was to suspend the joint of meat in front of the fire by a cord tied to a peg in the ceiling; from time to time, the housewife or one of the children would twist the string so as to turn the roast around.

The houses were lighted at night by means of tallow candles made at home in tin or pewter molds. During the day, light came in through the windows which were covered in early days with oiled paper, afterwards with panes of glass. The cabin floor was sanded. The furniture was made of rough slabs of wood. From this you can readily see that the many comforts and conveniences of the modern home which we enjoy today were entirely unknown to the pioneers. They knew no such things as the modern furnace, the modern piano and the still more modern phonograph, or similar comforts and conveniences.

*Problem II. How agriculture in Ohio was influenced by the older regions from which the settlers came*

The settlers in this Ohio country came from New England, Pennsylvania, Virginia, Kentucky, and New Jersey. Whole families migrated together for protection and company. They brought with them their customs and habits of life. Thus the

New Englanders started dairying and cheese-making; the Virginians brought their customs and habits to southern Ohio from their native state. Hillsboro, Manchester, and Chillicothe still show the influences of the Old Dominion settlers. The men who came from the Kentucky hill regions brought tobacco culture to southwestern Ohio, and this has remained a leading industry of that section. *Who were the early settlers of your county?*



FIG. 81. Typical pasture scene in Ashtabula County

The dairying industry which the early settlers brought to Ohio is carried on extensively in the northern part of the state. What breed of cattle is shown here? Note the old-time rail fence in the background, and the modern wire fence in the foreground of the picture

The Pennsylvania Dutch were engaged chiefly in raising live stock and in growing wheat, hence they brought these occupations to the new Ohio country. Many other settlers came from Pennsylvania to Monroe, Tuscarawas, and Holmes counties. Among these were the Swiss, who brought their home industry, that of cheese-making. *Is this industry still to be found in these counties?* To the Western Reserve came the Connecticut Yankees. *What type of farming did they bring to Ohio?*

*Problem III. How agriculture has been influenced by the physical features of Ohio*

The physical regions affecting Ohio agriculture are (1) the Lake Plain (northern and northwestern section), (2) the Allegheny Plateau (eastern and southeastern section), and (3) the Central Plain (central and southwestern section). Whether

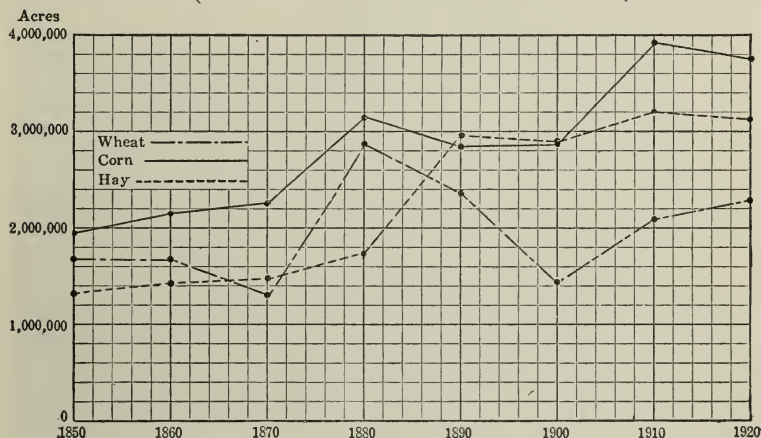


FIG. 82. Wheat, corn, and hay acreage in Ohio from 1850 to 1920

the early farmer settled in the Lake Plain section, the Allegheny Plateau, or the Central Plain, he learned from experience that soil and climate have a large influence on the results of his labor. The Ohio farmer of today is adding to the fund of knowledge already gained by the study of agriculture as a science. He selects his crops with care, endeavoring to choose those adapted to the soil and climate of his locality.

# I. THE LAKE PLAIN

The soil of the Lake Plain is the result of rich lake deposits left by Lake Erie as it gradually receded. The Lake Plain in the northwestern part of Ohio is level, with here and there ridges of sand and gravel. This is one of the best farm sections of the state and is well adapted to the growing of small grain, sugar beets, corn, and garden truck. Along the southern shore

of Lake Erie the peach, grape, apple, and pear thrive. The climatic conditions of this region contribute to the successful growing of orchards (Fig. 83). *Why?*

## 2. THE ALLEGHENY PLATEAU

In many places the Allegheny Plateau of northeastern Ohio is more than 500 feet above Lake Erie. The heavy clay soil



FIG. 83. Cherry trees in blossom

This picture shows a portion of the famous Farnsworth Grove at Waterville, Lucas County. Cherry trees thrive best in a loamy soil, preferably with a southern exposure. How does the value of Ohio's cherry crop compare with that of other orchard fruits?

of this section is not well adapted to the growing of grains, but is suitable for pasture land and hay. This section has many fine dairy herds. *Why?*

The hill-and-valley section of the Allegheny Plateau lies along the Ohio River. Its surface is too steep for the successful growing of crops, but a considerable portion is cultivated in spite of this handicap. The soils of this section vary with the rock underlying the surface. Sheep-raising, cattle-fattening, fruit-growing, and truck-farming predominate here. In the valleys there is also a good yield of corn, wheat, oats, and tobacco.



### 3. THE CENTRAL PLAIN

The Central Plain, embracing central and southwestern Ohio, consists of rolling glaciated land with broad, fertile river valleys. The soils are rich clay loam with heavy, dark muck soil in the depressions and river valleys. Under much of this there is an underlying limestone rock formation. This particular section of the state is the part best suited to grain, tobacco, and stock-raising. The valleys of the Miami and the Scioto are exceptionally fertile and grow immense crops. Throughout all this section, factories of various kinds have been established in order to aid in marketing farm products. *Name some of these factories and their products.*



FIG. 84. Types of wheat

A, Spelt; B, Einkorn; C, Common Fultz; D, Club; E, Polish; F, Durum; G, Black Winter Emmer. Nearly 90 per cent of the wheat grown in this country is of the Common Fultz type. (From Waters's "The Essentials of Agriculture")

#### *Problem IV. How agriculture has been aided by labor-saving machinery*

Annually there is held at the Ohio State University a tractor show and a splendid exhibit of farm machinery. The pioneer farmer saw no exhibits. He was forced to do his work with

the simplest kind of tools (Fig. 85). The ax and the grubbing hoe were used in clearing away the trees and the brush. The new ground was broken with a wooden-beam plow, after which potatoes, corn, and turnips were planted among the stumps. Wheat, rye, and oats were sown broadcast. When ripened these



FIG. 85. Reaping wheat with the cradle

As late as the middle of the nineteenth century, farm machinery was almost unknown. Wheat was sown broadcast by hand as in Bible days, and was reaped by means of the cradle as shown in this illustration. In 1830 it required three hours of man's labor to produce a bushel of wheat; in 1896 it required only ten minutes. When our forefathers were clearing the forests and fighting the Indians, a peck of wheat was a fair yearly allowance for an entire family. Today each person in the United States consumes on an average between five and six bushels of wheat each year. This increase in the amount of wheat raised has been brought about by the use of machinery and improved methods of agriculture

grains were cut with a sickle and bound by hand into sheaves. Afterwards the grain was threshed out with a flail and cleaned of chaff by tossing it into the air. This method is in marked contrast to the way work is done on the farm today (Fig. 86). There are no stumps with which to contend. These have been removed, and the farmer now breaks the ground with a gang plow drawn by horse power or by a tractor. The seed is sown with the drill or like farm implement, and the crop is cut by means of the harvester and threshed by the threshing machine.

Besides being a self-feeder, the modern thresher weighs the grain and at the same time blows the straw into the stack.

Gradually the primitive methods of farming gave way to modern, scientific methods. The year 1850 is the approximate date which marks the beginning of modern agriculture. By

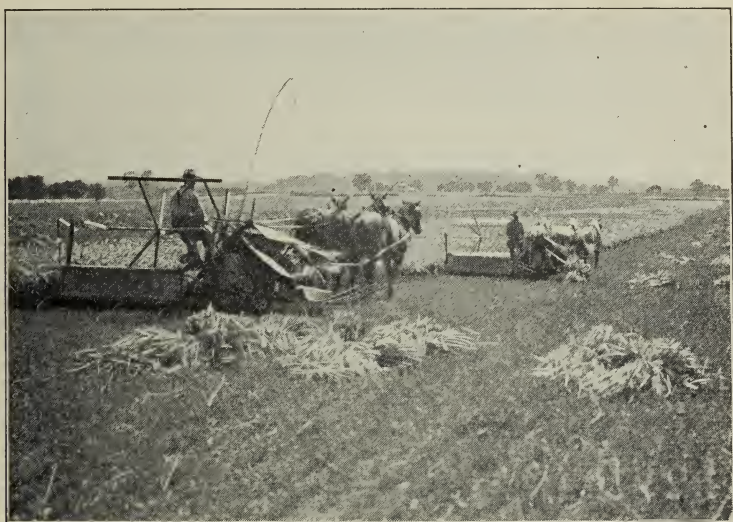


FIG. 86. Harvesting barley in Franklin County

The barley plant resembles the wheat plant but differs in the structure of the head and generally does not grow so tall. Barley thrives best on a well-drained loam soil, and is preferably grown after a hoed crop like corn. For what is it chiefly used?

How does the value of Ohio's barley crop compare with that of other cereals?

that time roads had become fairly well established, although not well built. Farm machinery was being rapidly improved, and many new agricultural implements were first tried out in the Ohio fields. Then, too, better methods of farming were being used. The care of well-bred stock and the raising of animals for the market, the growing of special crops like onions, celery, sugar beets, and sweet corn, require special skill and knowledge. To meet these requirements we now have courses in agriculture and animal husbandry at the state experiment station and university. Today the Ohio State University gives

extension courses in agriculture to farmers throughout the state. This enables the farmer to use his spare time, especially in the winter months, in the scientific study of his own work.

By the use of improved machinery and more scientific farming methods, we have gradually increased the number of acres

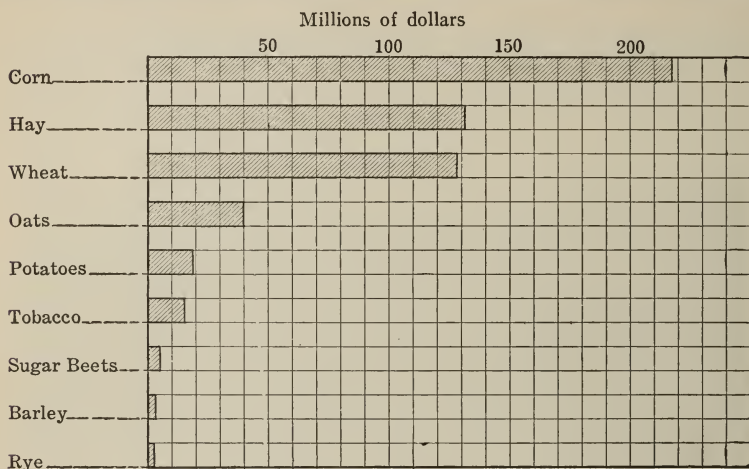


FIG. 87. Value of Ohio's nine leading farm crops

of land under cultivation. Today less than 8 per cent of Ohio's farm land is uncultivated, and we have 256,000 farms, or more than twice as many as in 1850.

*How does the value of Ohio farms of today compare with that of twenty years ago? What has contributed to this increase in acreage and in farm values?*

*Problem V. How manufacturing became Ohio's leading industry instead of agriculture*

The importance of the farm and its work cannot be overestimated. We are dependent upon the farmer for such necessities as food and clothing, as well as for many of the comforts of life. His is a life of arduous toil, but one of freedom and independence. "The farmer's life offers the greatest opportunity for expression of individuality that exists in any vocation.





MICH.

L. K. F.

IND.

KY.





K E E R I E

PA.

W. VA.

RELIEF MAP OF  
OHIO  
SHOWING AREAS OF THE  
SEVEN LARGEST CITIES

Scale of miles  
0 5 10 25 50 75

W.T. Oliver





Matters of personality, of efficiency, and of organizing and business ability are more directly expressed in the returns he receives and in the direct sense of accomplishment he experiences than in any other line of endeavor. The man in this industry who is alert, quick, wide-awake, and observant is more completely appreciated than in any other industry, for he must discover his needs and gain his rewards through close association with each of the manifold phases of nature. There is no one to tell him the things to do except himself, and the direct measure of his own results is his best reward."

Notwithstanding the advantages of farm life, as the population of Ohio increased from early days the people turned more and more to other industries, and this tendency grew as population increased. In 1850 about three fourths of the people of Ohio were on the farm. Today only about one third of Ohio's workers are engaged in farm pursuits. Manufacturing and transportation employ nearly twice as many workers as agriculture. We shall understand more about the reasons for this change in occupations when we study the development of transportation and manufactures. .

*Problem VI. How far Ohio agriculture aids in providing  
the nation's food supply*

CORN, OUR GREAT STAPLE CROP

Corn is Ohio's oldest grain. Just how old corn itself may be no one knows. It is certain that the Mound Builders stored corn in primitive cellars, and that corn was the principal food crop of the Indians. The native red men understood its cultivation so well that the early pioneers in our state followed their method of cultivation.

After the site for the log cabin had been selected and the home built, the settlers cleared away a spot of land and planted flint corn among the stumps. In many cases the seed for planting was obtained from the Indians. When the corn was ripe the stocks were not cut, but the ears were jerked and

stored in the cabin for use. From this you will see that the chief use of the corn crop to the farmer was to furnish food for his family. Today the corn crop of Ohio is used for a different purpose, serving chiefly as food for the animals on the farm.

At the present time corn is still Ohio's most valuable crop. It is more widely grown and represents a larger money return than any other farm crop (see Fig. 87). The acreage of corn land in the state today is almost twice as great as in 1850 (see Fig. 82). In 1920 Ohio produced 160,000,000 bushels of corn, or about 30 bushels to each individual in the state. The western half of the state produces about 75 per cent of the corn raised in Ohio. *Why?*

Notwithstanding the large production of corn, Ohio does not produce enough for its own live stock and food consumption. Hence corn is sent in from other states. At present every effort is being made to grow more corn in Ohio. Perhaps you have been interested in some of the corn-growing contests that have taken place in your part of the state.

*What are the corn clubs attempting to do? How? Why?*

## WHEAT

The first wheat was planted in the state in 1789, by the New England settlers at Marietta. For a number of years only a local supply was produced. There was no market for it, hence the price was very low. In 1822 wheat was 20 cents per bushel, and actually sold in Cleveland at as low a price as 10 cents. With the opening up of the Erie Canal, and the construction of Ohio canals and railroads, wheat found a market, and the price has since been regulated by supply and demand. In 1918 and 1919, during the World War, wheat sold in Ohio at more than \$3 per bushel.

Something has already been said of the harvesting of wheat by hand. The sickle gave way to the cradle and the cradle in turn to the reaper, which cut the wheat and dropped the bundle unbound. This was followed in turn by the modern self-binder, which not only binds the sheaves but collects the

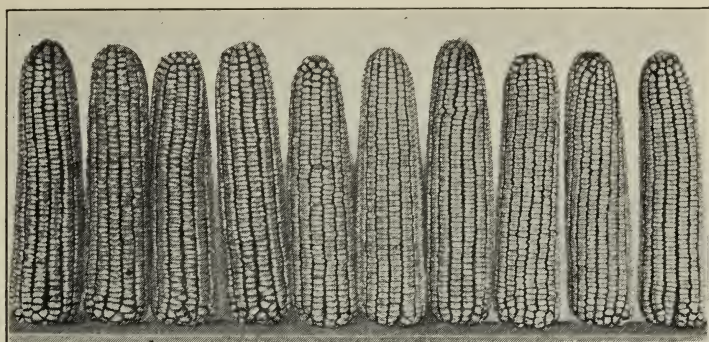


FIG. 88. Weekley's improved dent corn

This type of corn receives its name from the small dent at the summit of each grain. Three other types of corn are commonly grown in the United States: these are the flint, sweet, and pop corn. (From Waters's "The Essentials of Agriculture")



FIG. 89. Husking and shredding corn in Darke County

What motive power is used to drive the shredder? What are the advantages in shredding corn?



bundles so that they are ready to be shocked by the farm hand. A good cradler in the early days could cut three or four acres a day. In 1850 there were very few wheat drills used in Ohio, and only about twenty binders. At the present day no farm is equipped that does not have a wheat drill and self-binder.



FIG. 90. Threshing scene in Marion County

The tractor serves a wide variety of purposes on the farm. It is used not only for threshing as shown here, but also as the motive power in plowing, harrowing, and hauling grain. Most farm tractors are fitted with gasoline engines and use gasoline for fuel. The tractor shown in this picture is the wheeled tractor, the most common type. Another type—the crawler or caterpillar tractor—is sometimes used on sandy or marshy soil. The tanks which played such an important part in the World War were developed from this caterpillar tractor

In 1850, and again in 1860, Ohio was the leading state in the production of wheat. Since that time the wheat lands in the state have steadily decreased. *Why?* Today Ohio does not produce one half of the wheat that its people use. In early days the southeastern part of the state was the chief wheat-growing section, but at present our largest wheat crops are raised in central and southwestern Ohio (see Fig. 177).



## OATS

When the Pennsylvania Dutch came to Ohio they brought oats as feed for their horses. The increase in the number of work animals in the state led to the rapid expansion in the growing of oats. Today Ohio has twice as large an acreage of oats as it has of wheat, but the wheat crop is more than three times as valuable. The oat crop is largest in the northwestern plains of the state.

## FORAGE CROPS

Under forage crops are included hay, clover, alfalfa, and wild grasses. *Why are these important?* Ohio's hay crop is second only to corn in value (see Fig. 87). The production of hay is widely distributed over the state. Licking County, in central Ohio, is one of the leading hay counties. In the southwestern section, Highland County is the largest hay-growing county. The extensive dairy industry of the northeastern section of the state makes it necessary to devote a large acreage to pasture and the production of hay. Ashtabula County is the leading county in the production of hay and forage. Alfalfa has been recently introduced into Ohio as a valuable grass. It is grown more largely in Hamilton County than elsewhere, although it is finding its way into all parts of the state. Its growth is particularly fortunate because it helps to build up the soil by giving back nitrogen and other elements which have been taken up in the growth of such crops as tobacco, corn, and wheat.

The early Ohio farmer did not give much attention to hay, which grew abundantly in the form of wild grasses. He was dependent upon simple tools and could not handle his hay crop quickly or economically. He had to cut it with a scythe, make it into haystacks with wooden forks, and perhaps drag it to the feed lot with a rope or grapevine. Hay was seldom placed in barns for protection as is done today. Modern machinery has helped the present-day farmer to handle his hay much more efficiently. The mower cuts the grass, and the tedder exposes it to the wind and sun for curing. Then the hayrake, the

hay-loader (Fig. 92), and the hayfork all aid in moving the cured product to the mow in the barn. Originally the farmer hauled his hay to market and sold it in the same shape that it was mowed away. Today it is usually baled and shipped in bales. In all of these ways, scientific methods have aided in handling Ohio's second most important crop.

### POTATOES

The early settlers had to grow enough potatoes for their own use. Hence they were better off in this respect than we are today, for it is a fact that we do not raise enough potatoes in Ohio to supply our own needs. Our crop last year was only about one third as large as that of ten years ago. Hence we are dependent largely upon the potato fields of Michigan, Maine, and Canada. It is still true that nearly every Ohio farmer has a potato patch, but his attention to this crop and his manner of handling it have not brought very satisfactory results. Portage, Hamilton, and Cuyahoga counties have the largest yield. Each of these counties produces more than 400,000 bushels annually.

### ORCHARDS

The first apple scions were brought from Massachusetts by General Putnam. He established a nursery in the Muskingum Valley, and many of the counties along the Ohio River got their trees from this source. In 1796 a wagon-load of small apple trees was hauled over the National Road and sold to farmers along the way. From this you will see that early in Ohio's history the apple found a place. Many of the old orchards still have some of the earlier varieties, such as the Gillyflower, Greening, Golden Pippin, Seek-no-Further, Rambo, and Bellflower.

Johnny Appleseed was not a myth, but his real name was John Chapman. He actually carried apple seeds from town to town along the Ohio River, and also up into the northern sections of the state. Many Ohio farmers received their first trees



FIG. 91. A clover field in blossom

Red clover, like alfalfa, is a crop which builds up the soil by increasing the available amount of nitrogen. (From Waters's "The Essentials of Agriculture")

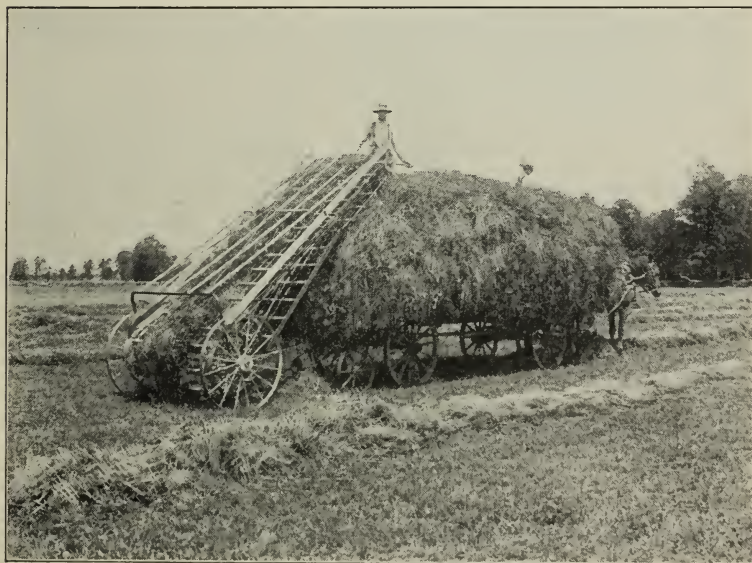


FIG. 92. Modern hay-loader at work

Explain why this is a valuable labor-saving device. After the hay is loaded, how is it unloaded into the barn? What are the principal kinds of hay grown in Ohio?

from this apple missionary. Apples found their way into northern and northeastern Ohio chiefly from Canada. In 1812 a boatload of apple trees was brought to Sandusky and distributed throughout northern Ohio. Then, too, some of the best varieties were brought from New York and New England and distributed throughout the Western Reserve. Today there are splendid apple orchards on the southern shore of Lake Erie, but the best orchards in the state are in Lawrence and Washington counties, which are on the Ohio River.

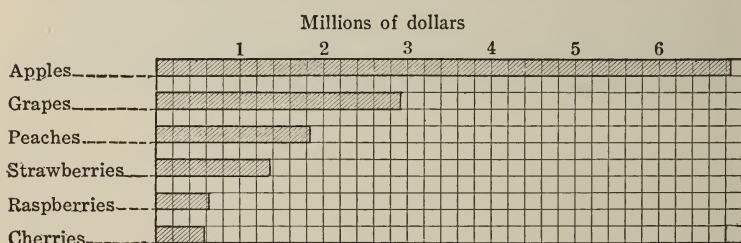


FIG. 93. Value of the six leading fruit crops of Ohio

The first peach trees in Ohio were grown at Marietta. Peaches were a great luxury to the pioneers. They preserved them in brandy or kept them as dried peaches for later use. The early peach orchards were less extensive than those of the apple, but in time the peach became distributed quite generally throughout the state. It thrives best in the temperature of the southern shore of Lake Erie, and this region is really the peach belt of the state (see Fig. 180). It is significant that the greatest peach production is in the county with the longest shore line—Ottawa County. Port Clinton is the largest peach center in the state and also the largest peach-canning center.

#### MAPLE PRODUCTS

The Indians taught the first inhabitants of Ohio to collect and boil maple sap and to make maple molasses and sugar. Today Ohio is one of the leading maple regions of the country. It is estimated that our state has 3,000,000 maple trees, which



yielded 62,000 pounds of sugar and 694,000 gallons of sirup in a recent year. The rolling lands of northeastern Ohio produce about one third of the maple products of the state.

### VINEYARDS

Wild grapes were abundant in early days. In 1818 Nicholas Longworth experimented with the grape in southwestern Ohio. He developed the Catawba grape and planted extensive vineyards in Hamilton and Clermont counties. In 1830 the grape industry was one of the most important industries around Cincinnati, but later it was discontinued because of the rot that attacked the plants. Afterwards the grape came into prominence on the southern shore of Lake Erie and on Kelleys Island. The grape thrives in this section because of the soil and climatic conditions due to lake influences. *Explain.* The leading counties in grape culture are Cuyahoga, Erie, Lorain, Lake, and Ottawa.



FIG. 94. A topped tobacco plant

(United States Department of Agriculture)

### TOBACCO

Nearly every pioneer farmer grew tobacco, not for the market but for his own use. It is true, however, that in early days in Ashtabula County the surplus tobacco was made into cigars by the women of the home, and exchanged at the store for groceries. The first tobacco raised on a larger scale was produced in the southeastern counties of Ohio. After it was grown it was packed into hogsheads and hauled over the National Road to eastern points. Tobacco found its way into

southwestern Ohio from Kentucky. It was a yellow-leaved tobacco, much of which was shipped to Europe. The cultivation of tobacco is profitable, and frequently a single crop more than pays for the land upon which it grows (see Fig. 178).

### DAIRYING AND DAIRY CATTLE

Some of the best-bred dairy cattle were brought to Ohio from Kentucky and the South, while the first Shorthorn and



FIG. 95. Gamboge Kleinwood, No. 425,609

This Jersey three-year-old, owned by the Hartman Farm, Franklin County, produced 1305 pounds of milk in one month. This made 76 pounds of butter. What would this butter bring at the present market price?

Durhams were imported from England to Ross and Trumbull counties. Today only about one tenth of our dairy cattle are pure-bred stock, the Holsteins and Jerseys being most numerous (Fig. 95).

Dairying as a business was first carried on in the Western Reserve. This industry included the making of cheese and

butter. Today the supplying of raw milk is the important work of the dairy. In order to provide the centers of population with the milk needed, dairies many miles away ship milk to the cities by truck, interurban, and steam lines. Ohio does not produce enough milk to supply its own consumers, so that we must look to other states for a considerable part of our milk supply.

To meet the ever-increasing demand for milk, due to increased population, much attention is paid to cattle-raising,



FIG. 96. Interior of a modern dairy barn in Franklin County

These sanitary quarters built for valuable dairy cattle show the importance of this industry. What material is used in the construction of this barn? What does the sign say? Explain the use of the staunchions; of the milking machines

especially dairy cattle. To encourage this industry, county fairs, cattle shows, and exhibits of various kinds are held throughout the state. Then, too, the Agricultural College is making a scientific study of dairying and dairy products.

Cuyahoga County has almost one half of the dairies that are located within the state. *Why?* Large milk condensers are located in Trumbull, Logan, and Union counties, and these

condensers buy up the surplus milk from the farmers in order to have a supply for condensing and canning. Milk powder and other preparations required in ice cream are minor dairy products.

#### BUTTER AND CHEESE

The creamery for butter-making has not been important or even successful in Ohio. Its difficulty has been to secure the supply of raw milk necessary to keep the plants running. Today there is actually more butter made on the farm than in the creameries of the state.

Cheese-making in Ohio has suffered for the same reason. Most of the cheese is made in northeastern Ohio, especially in the cheese factories of Tuscarawas and Holmes counties. Formerly a good deal of Swiss cheese was made in the state, but the output has decreased.

#### Hogs

In 1850 the southeastern counties of the state produced hogs in large numbers. They were driven to Cincinnati in large droves, and the streets were sometimes literally filled with these animals on the way to the packing houses. Hence the name of "Porkopolis" for Cincinnati. The Miami Valley boasts of having developed the Poland-China hog. The Duroc-Jersey is another breed commonly raised in this state (Fig. 97).

At the present time the raising of hogs is one of the most important industries of the state. Hog-raising is carried on chiefly in the corn-growing section (see Fig. 176), because corn is the principal food used in fattening hogs for market. The total value of Ohio's hogs is nearly \$50,000,000, and our state with six others (Iowa, Illinois, Indiana, Missouri, Nebraska, Georgia) raises nearly 50 per cent of the hogs of the country.

#### SHEEP

Ohio has more sheep and is a larger producer of wool than any other state east of the Mississippi River. It has required a good many years to bring the sheep industry to its present





FIG. 97. Duroc-Jersey hogs, a popular Ohio breed. (From Waters's "The Essentials of Agriculture")



FIG. 98. American Merino sheep

This is the smallest of the fine-wool breeds, and furnishes the finest and heaviest fleece of any breed. (From Waters's "The Essentials of Agriculture")

state. In 1810 the Putnam family brought into southeastern Ohio a small drove of Spanish Merinos. About the same time another flock of Spanish Merinos was driven from Connecticut to Stark County. It is interesting to follow the development of the woolen mills that sprang up here and there along the streams to do the work of combing the wool and weaving it into coarse cloth. The wool was often mixed with flax to make linsey-woolsey, or something with cotton to make jeans. The early farmers who raised sheep gave very little attention to anything else than the growth for wool. Today the Ohio farmer raises sheep for mutton as well as for wool. *How does Ohio rank in sheep-raising?*

#### HORSES

With the coming of the automobile and the use of the motor as power on the farm, the demand for horses has decreased, so that today Ohio has fewer horses than thirty years ago. In the last ten years every county in the state has shown a decrease in the number of horses. Nevertheless the horse still has a place on the farm, a place that has not been filled by the automobile or any other power.

When the Pennsylvania Dutch came to central Ohio, they brought with them heavy draft horses. These draft horses were used in drawing the Conestoga wagons. Today the best Percheron and Flemish horses in the state are to be found in Wayne and Stark counties, the very localities where the Pennsylvania Dutch settled.

#### POULTRY

It is difficult for us to realize today that eggs ever sold in Ohio at from 2 cents to 5 cents per dozen, but such is the case. Even the fowls themselves sold at from 50 cents to 75 cents per dozen, not because they were so plentiful, but because there was no special demand for them outside of the immediate needs of the home.

Today poultry-raising is an important industry. Ohio produces more eggs than it consumes, and ships large quantities

of poultry into other states. Special poultry farms have been developed, and their output is shipped almost daily to the eastern markets. The leading poultry counties are Darke, Wayne, Highland, Licking, and Hancock.

### MISCELLANEOUS

As the population of Ohio has increased, there has been a more intensive cultivation of the soil, and many smaller vegetable crops have found their place. The onion crop is large



FIG. 99. White Plymouth Rocks. (From Waters's "The Essentials of Agriculture")

in point of value, although growing onions on a commercial basis is confined to rather limited areas in the state. In order to grow onions well, the soil must be rich muck soil that has been recently drained. Such soil conditions exist in the marshland in and about Hardin County. *Name other sections growing onions, celery, and like vegetables.* The same soil conditions are necessary in order to grow celery successfully. The cabbage is produced in large quantities in Ohio, likewise lettuce, cucumbers, beans, and tomatoes. The heavy lake clay soil of northwestern Ohio is adapted to sugar beets. This is a very valuable crop and is developing into a more valuable one. Wood and adjacent counties are the principal producers.

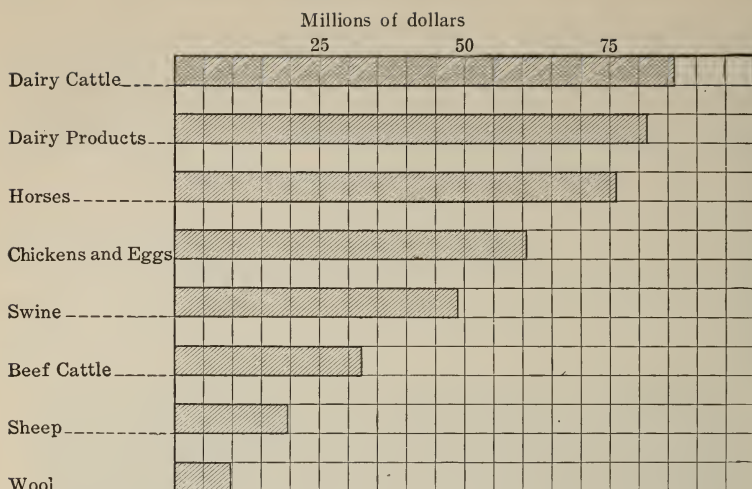


FIG. 100. Value of Ohio's live stock and live-stock products



FIG. 101. Truck farming in Franklin County, Ohio

What method of irrigation has been used for this crop of spinach? Why is truck farming often carried on in the region adjoining a large city? How will this crop be sent to the city?



## SPECIAL PROBLEMS FOR INVESTIGATION

1. Study the history of your community and find some true stories of the hard labor of the early pioneers to make farms out of the forest regions.

2. Read descriptions of the early farming in Ohio from some of the following books. Did the first settlers in your community have similar experiences?

Howe, Henry, *Historical Collections*, Vol. I.

Roosevelt, Theodore, *The Winning of the West*.

Ohio Agricultural Experiment Station, Bulletin No. 326, *Farm Life in Ohio*.

3. Investigate the use of machinery in farming and answer the following questions:

a. How many acres can a tractor plow in one day? How many acres can a man with a team plow in one day?

b. How many acres of corn can a man hoe in a day? How many acres can he cultivate in a day?

c. How many days does it take to cut an acre of wheat with a binder? with a cradle?

d. In threshing wheat how long will it take to thresh 500 bushels with modern machinery? If a flail were used how long would it take a man to thresh the same amount?

e. In digging potatoes how long will it take a man to dig an acre? If the potato-digger were used how long would it take?

f. In cutting hay how long will it take to cut an acre with a scythe? with a mowing machine?

g. Sum up your conclusions about the use of machinery on the farm.

4. Are there any corn clubs for boys in your county? Why are these clubs encouraged? What is the largest yield per acre of corn raised by a boy in your county? (For information write to the County Agricultural Agent, who has an office at the county seat.) Can a boy raise more corn upon one acre than the average farmer? Why? Is corn raised for the same purposes today as in pioneer days?

5. Does Ohio raise enough wheat to make the flour consumed by its people? (To answer, estimate that each person consumes in a year five bushels of wheat.) Can you explain why wheat-growing in Ohio has decreased?

6. Write to the County Agricultural Agent for information concerning a pig club. In what counties would a pig club give the best results? From the local newspaper find the selling price of six-months-old pigs of average weight. Find the cost of feeding these animals. Why are hogs called "mortgage-raisers"?

7. Secure information concerning the problems of fruit-growing in your locality. State the result of your investigation concerning the climate, soil, surface, and markets. Select any fruit tree such as the apple, plum, pear, peach. Find its production and the market value of this fruit. What must be done to trees in your vicinity to make them yield more and better fruit? (Write to the Agricultural Experiment Station, Wooster, Ohio, for information.)

8. Dairy problems:

a. Where is the milk consumed in your home obtained?

b. Describe a model dairy and explain how the milk is shipped to the consumer.

c. Try to visit a creamery and find how butter is made.

d. What is butter fat and how does the farmer obtain it from the milk?

9. Try to find the comparative value of the different poultry products. How would you improve the poultry products in your vicinity?

10. Investigate any special crops (like tobacco, onions, cabbage, asparagus, lettuce, and flowers) that are grown in your vicinity, and find out the conditions of soil, climate, and labor which are favorable for their growth in your locality. Where are these products sold and why has their growing developed so largely in the last few years in this region? Send to the United States Department of Agriculture for special bulletins upon any of these subjects.

11. Using the data given in the table on page 149, solve the following problems:

a. What was the average yield per acre of corn in 1920? How many bushels of corn on the average was this for each person in Ohio? What was the crop worth at 75 cents per bushel?

b. If the 1920 crop of wheat brought \$1.45 per bushel and the oats crop 65 cents a bushel, which was the better money crop?

c. What was the average yield of potatoes per acre?

d. If the tobacco crop brought 8 cents per pound, did it yield more money per acre than wheat at \$1.45 per bushel?

e. If hay brought \$8.50 per ton and potatoes \$1.85 per bushel, which was the better crop in 1920 in Ohio?

f. Find the average yield per acre of barley, of buckwheat, and of rye.

STATISTICS OF NINE OHIO CROPS IN 1920

GRAIN	ACRES SOWN OR PLANTED	YIELD
Corn . . . . .	3,498,510	154,612,000 bushels
Hay . . . . .	3,150,280	4,251,898 tons
Wheat . . . . .	2,228,650	28,308,325 bushels
Oats . . . . .	1,614,410	71,331,480 bushels
Potatoes . . . . .	115,810	11,498,445 bushels
Tobacco . . . . .	62,740	60,480,450 pounds
Barley . . . . .	102,198	2,824,991 bushels
Rye . . . . .	79,484	1,153,249 bushels
Buckwheat . . . . .	26,249	542,915 bushels

AIDS TO THE STUDY OF THE PROBLEMS

ATWOOD, WALLACE W., *New Geography*, Book Two, pp. 48-50, 278-283.

CALDWELL and EIKENBERRY, *General Science*, pp. 312-335.

WATERS, H. J., *The Essentials of Agriculture*.

Ohio Agricultural Commission, Columbus, Ohio, *Annual Report*.

Agricultural Experiment Station, Wooster, Ohio, *Various Publications*.

Fourteenth Census of the United States, Bulletin, *Agriculture: Ohio*.

State Department of Agriculture, Columbus, Ohio, *Annual Report*.

Agricultural Experiment Station, Wooster, Ohio, Bulletin No. 326, *Farm Life in Ohio*.

## CHAPTER VII

### MINE AND QUARRY PRODUCTS

The minerals produced in Ohio are largely the raw materials necessary to the various industries of the state. In the order of their importance these are: (1) the fuels—coal, petroleum, and natural gas; (2) clays and shales for making brick, tile, terra cotta, and pottery; (3) building material—limestone and sandstone; (4) gypsum and limestone for Portland cement and plaster of Paris; (5) salt; (6) hard sandstones for abrasives such as grindstones, wood-pulp grinders, and whetstones; (7) sandstone for curbing and foundations.

#### *Problem I. How the presence of coal aided the development of Ohio's industries*

When exploring the creeks of southeastern Ohio, the first settlers found in the ledges of the streams what appeared to be a black stone. They tried it in their open fireplaces, but it had a disagreeable smoke and was dirty. No one would use coal when hard wood could be obtained. However, as the dense forests were gradually cleared, coal became a necessity. In pioneer days, coal was first mined in Belmont and Meigs counties. From the rock ledges along the streams it was loaded into boats, which floated down the Ohio River to Marietta, Portsmouth, and Cincinnati. In 1835 coal was towed in barges from Pomeroy and Cincinnati to St. Louis and as far south as New Orleans. The ease with which the coal was mined and shipped encouraged a rapid industrial development in the region along the Ohio River.

The opening of the Ohio Canal, which extended from Portsmouth to Cleveland and passed through portions of the coal fields, provided a waterway for transporting coal to Cleveland



and the Great Lakes. The first coal brought to Cleveland was burned as a curiosity in the fireplace of a public tavern. At this time about 20,000 tons of coal were being mined in Ohio each year. You can form some notion of what this meant when you realize that the entire year's production of coal could be easily loaded on two of our modern lake freighters.

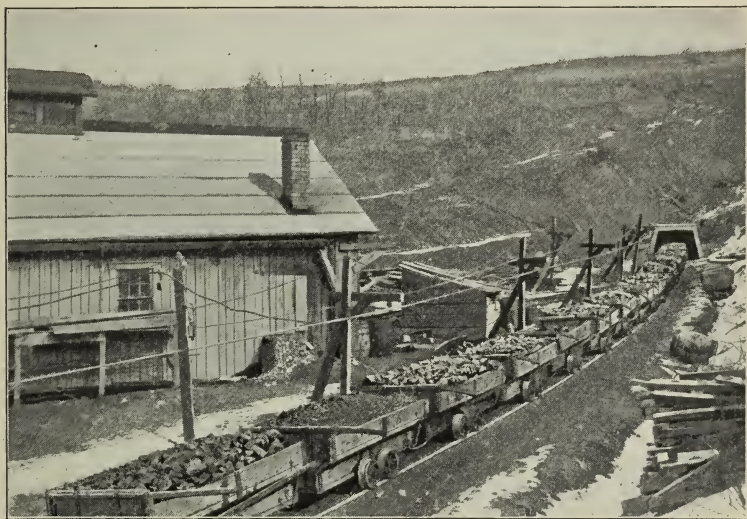


FIG. 102. Coal mining in southeastern Ohio

This shows the way in which coal is taken from the mine. Name some of the probable destinations and uses of this product. Fig. 104 shows the interior of the same mine

When Ohio became a state (1803) there was not a steam engine, a railroad, or a steamboat in the United States. It was the rapid development and use of the steam engine that really created a demand for cheap fuel such as coal. All manufacturing industries used wood as fuel until the supply was exhausted. The demands of these industries have caused Ohio's production of coal to double every ten years. Today Ohio supplies coal for its own industries, and sends to neighboring states of the Northwest nearly one half of its annual output. The wonderful development of our manufacturing industries has been due to this abundant supply of fuel (Fig. 103).

The Pennsylvania and West Virginia coal fields extend into southeastern Ohio, as shown in Fig. 107, but the fields extend northward so that coal is actually mined within sixty miles of Lake Erie. It is interesting to note that every river county in the southeastern part of the state is engaged in coal mining. Belmont County, on the Ohio River, produces more coal than

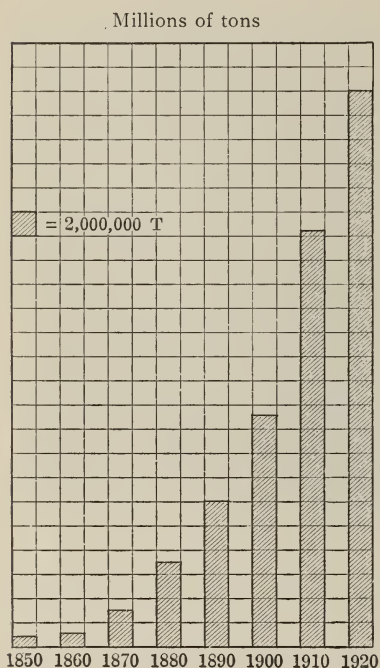


FIG. 103. Production of coal in Ohio from 1850 to 1920

any of the other counties in the state, and has an output equivalent to one fourth of the entire coal production of Ohio. Jefferson, and the neighboring counties of Harrison, Tuscarawas, and Guernsey, are within the coal-bearing formation between the Ohio River and Lake Erie. These counties produce about a third of Ohio's coal. Other counties of the state that have rich coal lands are Hocking, Athens, Meigs, and Perry. In this region we have the well-known Hocking Valley coal, which was first mined at Nelsonville on the Ohio Canal. The railroads soon opened up a market for this particular coal, and today it is shipped in large quantities

to Lake Erie ports for industrial purposes.

In all these counties, coal mining is the chief occupation. It is not necessary to go to other states to find typical mining towns. Dillonvale and Bellaire are centered about the coal mines. St. Clairsville, New Philadelphia, Mineral City, Nelsonville, and Cambridge are other mining centers. Ohio's coal fields are located in the "hill and valley" portion of the state, a region unsuited to general farming because of its irregular

surface and poor soil. The coal formations bring industrial prosperity to this section, which would be poor if it did not possess this important source of wealth.

The method of opening up the mines and of operating them is exceedingly interesting and instructive. Whatever good thing we have has cost effort and sacrifice, and this is especially

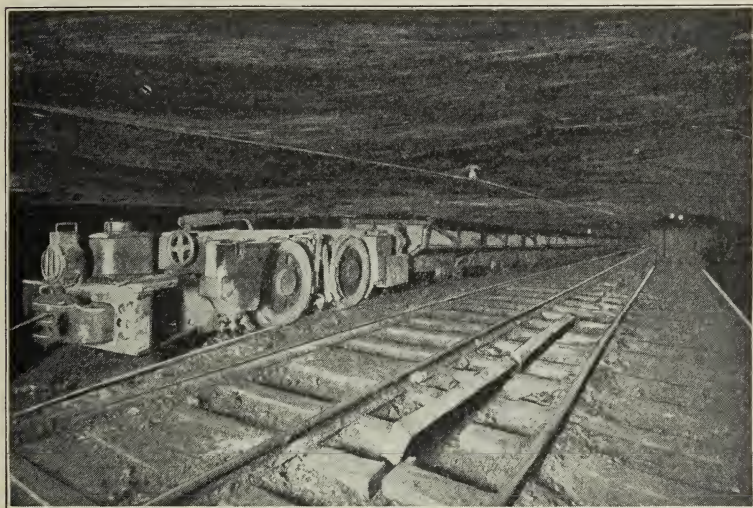


FIG. 104. Interior of a coal mine near Nelsonville, Ohio

What motive power is used to draw these cars? How are the mines ventilated? Why is the work of the miner so hazardous?

true of the production of coal. It is no ordinary task that the coal miners undertake when they enter upon their shift in the mine. They have hazards that are far greater than those in the ordinary pursuits of life. Every miner works in constant danger from the falling of the roof, explosion of gas, floods, and fire.

It will be interesting for you to read the story of how the shaft is sunk and the mine enlarged, and the method by which the coal is poured into the chute and loaded on the cars. Through it all you will be impressed with the difficulty under which the miner labors, and the dangers that constantly threaten



him (Fig. 104). Even the air that he breathes must be forced into the mine through air passageways to the bottom of the shaft, where it enters the main galleries and mine chambers. Immense fans are placed at the foot of the shafts, by means of which the foul air of the mine is forced to ascend to the surface



FIG. 105. Wasteful beehive coke ovens

When coke is made in ovens of this type the valuable gases escape and no by-products are saved. (Courtesy of H. Koppers Company, Pittsburgh, Pennsylvania)

through other air shafts. Many laws have been passed by our legislature to safeguard the lives of miners. *Explain. What is the Davy lamp?*

Nearly one half of Ohio's coal is shipped to the Great Lakes and carried by boat to the Northwest. Of the coal used in the state, about one third is consumed in industry, and one fifth is used in heating homes and buildings. A much smaller proportion is made into coke and used in manufacturing gas.

Coke-making from coal has developed rapidly in the last ten years. Coke is made in iron and steel plants, which require



this fuel for smelting iron ore. Coke was formerly made in beehive ovens, which permitted the escape of gas and coal-tar products, leaving coke as the only product (Fig. 105). At present, modern coke ovens are generally used, which save the gas, tar, and by-products (Fig. 106). The by-products obtained

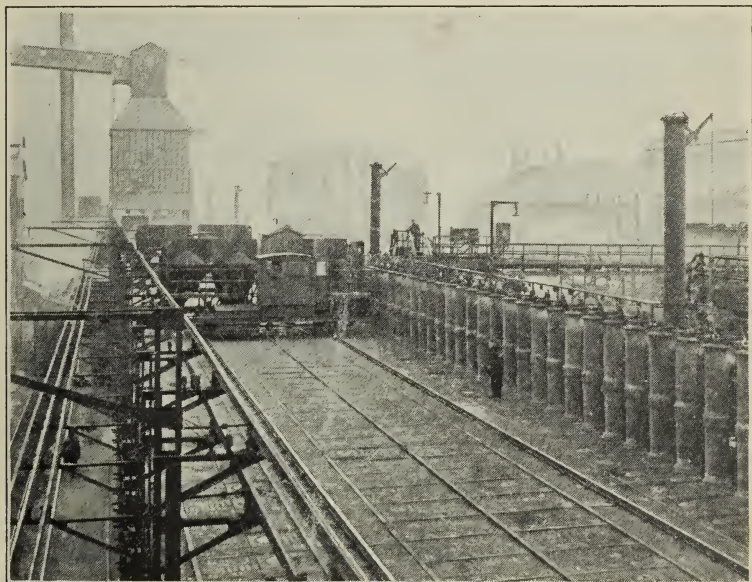


FIG. 106. By-product coke ovens, Lorain, Ohio

These modern retort ovens save the by-products of the coking process. This picture shows the ovens, the cars used for filling them, and the coal-storage bins. (Courtesy of the National Tube Company)

by this process of coking are sufficient to pay for the coal used. The gas is consumed in the iron and steel plants, and the other by-products are sold. Some of these by-products are tar, lamp-black (used for ink and paint), naphtha, hundreds of dyes, perfumes, explosives, carbolic acid, moth balls, creosote, blue-print paper, fertilizer, baking-powder, sulphuric acid, and the like. The coke ovens of Ohio produced nearly 3,000,000 tons of coke in a recent year. Cleveland and Youngstown make three fourths of this output.

The rapid increase in the use of coal has resulted in wasteful methods of mining, and frequently in the wasteful use of this fuel after being mined. Ohio's coal deposits are being rapidly mined, and unless more care is exercised in the method of mining and in the use of this important fuel, Ohio's coal supply will be rapidly exhausted. The fuel supply of the state is sure to become one of our most serious problems. You can readily see that without its coal supply, Ohio would be an agricultural state, lacking its large industrial cities.

*Problem II. How the waste of natural gas proved an industrial loss to the state*

In 1838, during the excavation of a well near Findlay, gas was found and carried by a wooden pipe to the owner's fireplace, where it was burned for more than fifty years. At East Liverpool, in 1859, a well drilled for salt was abandoned because of the natural gas which was then considered a distinct nuisance. Later the gas in this well was piped to a house and to a pottery. In the years immediately following, many small gas wells were put down in various sections of Ohio, the output of which was used entirely for domestic purposes. As a commercial fuel, gas found no use until about 1884.

The first center of extensive gas drilling was at Findlay. Many of the wells drilled here about 1885 proved to be large producers. The famous Karg well had a tremendous flow of gas, which came to the surface with a roar that could be heard for several miles around. It was lighted and the flame was visible for many miles. Findlay gave free gas to all industries which would locate there. This served as a wonderful inducement and caused a growth in population that was phenomenal. No effort was made to conserve the gas, and as a result it was practically exhausted within ten years. Fostoria, Tiffin, Lima, and many other cities have had a like experience with their gas supply.

At present the gas region is confined to the section extending from Lakewood, on Lake Erie, through Medina, Newark,

Lancaster, and on to Wellston. The Lakewood area, about thirty miles west of Cleveland, was first discovered in 1912. Within five years, 900 wells were drilled within this small area. This gas was of great value to Cleveland, but at the present

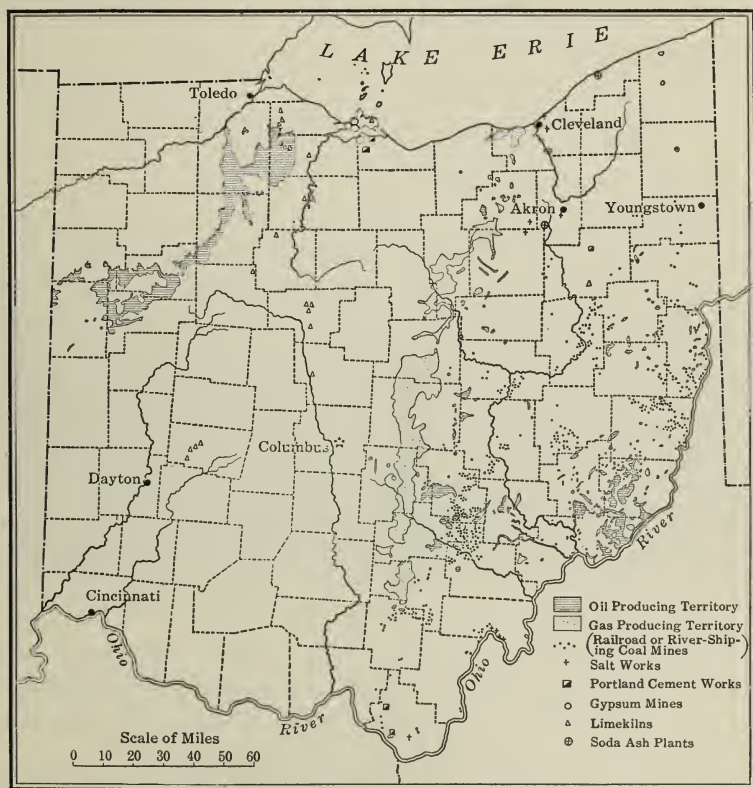


FIG. 107. Mineral-producing areas in Ohio

time the supply is nearly exhausted. Fairfield, Knox, and Licking counties are now the principal sources of natural gas in Ohio (see Fig. 107). More than thirty-five villages and all the large cities of Ohio are using natural gas. Over one half of this supply is obtained from West Virginia. The gas of the large cities is brought several hundred miles through pipe lines.

Natural gas is the most convenient fuel for domestic use. It is cheap, free from smoke, and has high heating qualities. Much gas has been used industrially, especially in glass factories and potteries, but recently gas has been reserved for domestic use. Ohio ranks second in the amount of natural gas consumed, while in production it is fourth. From natural gas 5,000,000 gallons of gasoline are extracted each year in Ohio.

*Problem III. How Ohio's oil wells have created numerous industries*

Petroleum or Seneca oil was used in Ohio as a medicine in 1818. Its bad taste was its chief recommendation as a pioneer remedy. Petroleum was first obtained in the vicinity of Marietta, in Washington County, in wells less than one hundred feet in depth. From Marietta the crude petroleum was shipped to Pittsburgh, Cleveland, St. Louis, and other cities for refining. In the refining, kerosene was obtained, and it furnished a brilliant light which rapidly replaced the dim candle. Today kerosene is widely used for lighting purposes, but it is likely to be completely supplanted by the electric light of more recent discovery. Petroleum occurs in coarse sandstone formation, at from 200 to 2000 feet below the surface. To obtain it, deep wells must be drilled to the "oil pool," as the underground reservoirs of petroleum are called. When the well is drilled the petroleum may flow to the surface; otherwise it is pumped. The crude oil is stored in immense tanks until the refinery is ready to convert it into various products.

The oil pools of Ohio were developed after those of Pennsylvania. The first oil wells were along the Ohio River, but later the rich fields in the northwestern part of the state were discovered. In Wood County, the largest producer of oil, 8000 wells were drilled. At present the northwestern part of Ohio produces more oil than the southeastern region (see Fig. 107). Lima, in Allen County, is in the center of the oil region (Fig. 108). In 1888 Ohio was at the height of its petroleum production. It was then producing about one third of the crude



oil of the country. Experts estimate that the Ohio oil wells are nearly exhausted. Today this state produces only one forty-fifth of the petroleum supply of the country.

In refining petroleum the chief products obtained are gasoline, kerosene, gas and fuel oil, lubricating oil, wax, vaseline,



FIG. 108. Oil refinery at Lima, Ohio

In the refinery, crude petroleum is converted into useful products by means of distillation and chemical treatment. The most important products obtained in this way are gasoline, kerosene, lubricating and fuel oils. The crude petroleum is usually transported to the refineries by means of pipe lines, while the refined products are carried principally in tank cars

and many other products used in medicine and in the arts. Petroleum refining has been centered largely in Cleveland, Lima, and Toledo. At first the crude petroleum was shipped in tank cars to the refining centers, but pipe lines have since been built to carry oil to the refineries. In early days, kerosene was the important product, and gasoline merely a waste product. The development of the gasoline motor, automobile, and tractor has made gasoline the most important petroleum product. It is estimated that Ohio produces less than one

thirtieth of the gasoline that is consumed in industries, automobiles, and airplanes. Gasoline may be obtained from oil shale, and in the near future the large deposits of these rocks in Ohio will probably be utilized to produce motor oil and gas.

*Problem IV. How Ohio's clay products have made this state a leading producer of building materials and pottery*

Doubtless we attach too little importance to the clay products of our great state. It is a matter of statistics that Ohio produces one fifth of the country's sewer pipe, pottery, and other clay products. When we think of the great quantities of brick, terra cotta, roof tile, sewer pipe, hollow building tile, electric-fixture tile, and drainage tile that are used in this state, we get some notion of the importance of Ohio's clay. Notwithstanding the great quantities used in our state, we are constantly shipping out still larger quantities for use elsewhere.

Nearly every community has its brick-yards where the local supply of brick is burned. It will be an interesting study for you to make a trip to one of these brick-yards and discover how the clay or shale is first pulverized, then mixed with water, and under heavy pressure pressed into the required shape. You will note that these bricks are dried and piled into the kiln, where they are fired for several days. Then we have the finished brick, which you know so well.

The heavy paving brick are burned much longer than the common building brick. This renders them firmer and less likely to be broken. The first heavy paving brick were made at Malvern in 1887. Today Stark, Cuyahoga, and Muskingum counties furnish about one fourth of the vitrified paving brick of the United States. You will be interested in finding out why it is that certain bricks are of one color while others are of another, likewise why some bricks are strong and others comparatively brittle.

Ohio is the leading state in the production of hollow building tile and roof tile. As early as 1814 in the quaint village of Germantown, south of Dayton, roof tile was made. In 1820

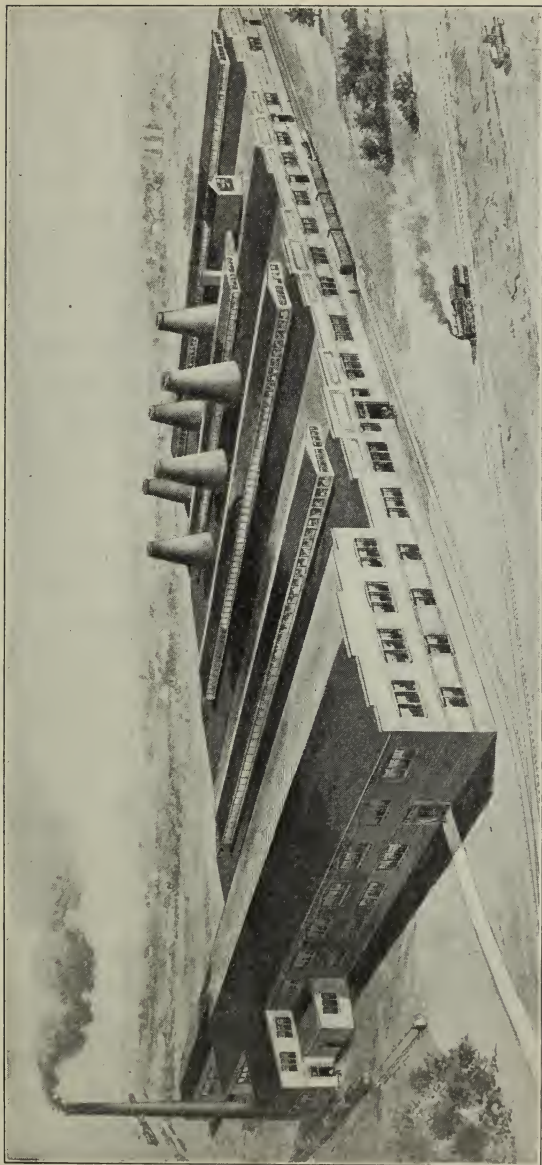


FIG. 109. A porcelain-manufacturing plant, Carey, Ohio

Porcelain is in great demand as an insulating material ; that is, a substance which will not transmit or conduct electrical currents. The plant illustrated above specializes in the production of electrical porcelain insulators, including knobs to which wires may be tied, cleats between which wires are clamped, tubes within which wires are carried through walls, and blocks of many designs to which electrical devices are attached. (Courtesy of the Federal Porcelain Company)



FIG. 110. One method of making pottery

The potter takes a lump of tempered clay and places it on a rapidly revolving disc or potter's wheel, as shown in the first picture. As the wheel turns he gradually works it into the desired shape. Turning on the wheel represents the earliest method of the potter, and is still used for art-ware. (Courtesy of the Rookwood Pottery, Cincinnati, Ohio)

roof tile was made for buildings at Zoar, in Tuscarawas County. Many of these tile roofs at Zoar are still in excellent condition, although they are more than one hundred years old. From this early beginning, Ohio assumed the lead in the manufacturing of roof tile. Today the important centers for its manufacture are Akron, New Philadelphia, Cincinnati, and New Lexington.

Ohio's pottery products are nearly double the value of those of New Jersey, our leading competitor. Ohio's great pottery district is in Columbiana County, with East Liverpool as the center. This city produces one half of the pottery of Ohio. Mahoning and Summit counties also have large pottery centers.

Pottery manufacture in Ohio began when James Bennett, an English potter, came to East Liverpool and



found the clay in the neighboring hills satisfactory for Rockingham and yellow ware. Bennett built a kiln in 1839, and made the first pottery in Ohio. This ware was peddled from home to home. Bennett's success led to the establishment of other potteries, until at the present time East Liverpool has 307 kilns. Ohio clay is largely used, although clay is also obtained from North Carolina, Kentucky, Tennessee, Florida, and even from England.

When the clay is received at the pottery, it is mixed with other clay and water to form the "slip." This is stored in large cisterns until needed. The water is then pressed out and the clay is ready for the potter. Nearly all pottery pieces are cast in molds, only a very few special dishes being shaped by hand. After



FIG. III. Decorator at work in his studio

The art-ware of the Rookwood Pottery has won an international reputation. The original Rookwood consisted of a stoneware body, decorated with slip glaze colors, chiefly shades of brown and green. The latest Rookwood product is the "velum" ware, in which lighter hand-painted decorations are covered with a transparent matte glaze

the piece is formed by casting or pressing in the mold, it is taken to the kiln for firing. It requires two days for firing and cooling the kiln. After the first firing the glaze is applied, and the piece refired. Some of the decorating is done by hand, but most of the figures are made by what are called transfers. After being decorated the piece is fired, and it is then ready for packing and shipping. It is estimated that each piece of pottery is handled from forty to fifty times before it is ready for use.

Have you ever been interested in the dishes that are on your table? If so, you will doubtless come across trade-marks indicating that much of this ware was made in Ohio. The East Liverpool pottery district produces a good deal of the semi-porcelain, white ware, Rockingham, and white granite. In fact, so much of the best pottery of the country is turned out at East Liverpool and the neighboring section that this district is called the "Staffordshire of America." About 9000 people are employed in these potteries alone. Their whole thought and best efforts are given over to shaping objects of beauty and usefulness for our homes.

The Rookwood Pottery of Cincinnati is famous the world over, not so much for the large output as for the marvelous beauty of coloring and design of the pieces (Fig. 111). This particular output has an international reputation. Sebring and Zanesville are centers that have large pottery interests with a product that is deservedly popular because of its beauty and utility.

*Problem V. How Ohio's quarries supply many valuable building materials*

We all realize the importance of stone, especially sandstone, as a building material, for many of our homes, bridges, and factories are constructed of this material. However, the use of steel and reinforced concrete for building purposes has tended to decrease the use of sandstone for larger structures.

The sandstone of Ohio occurs largely in three counties—Cuyahoga, Lorain, and Medina. It is quarried and shipped from these counties to all parts of the state. The quarry at Amherst supplies a stone of buff color that is easily worked and quite durable. Many of the public buildings in Ohio have been built of this stone. The Gray canyon quarry at Amherst is over 200 feet in depth, and is one of the largest sandstone quarries in the United States. The Berea grit is a sandstone found in northern Ohio and quarried at Berea, where it is made into grindstones, pulp-grinders, and whetstones (Fig. 112).

Four fifths of the grindstones used in this country are made at Berea. For sidewalks, sandstone is used from the quarries of northern Ohio. At first this sandstone was split into slabs or flags, but at present the slabs are sawed from a block of stone. Sandstone is also used in paving and for curbs. When sandstone is

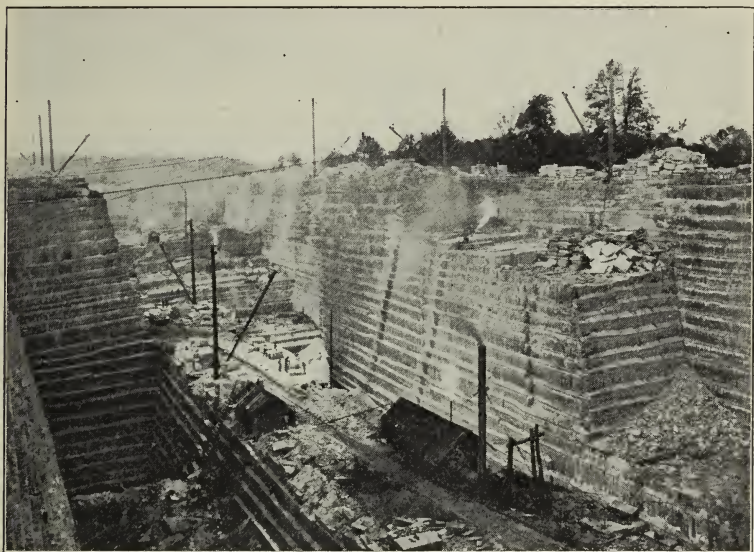


FIG. 112. A section of the famous Berea quarry

Describe the process by which the stone is taken from the quarry and made ready for use. Why is artificial stone often used as a substitute for the natural product? (Courtesy of the Cleveland Stone Company)

free from impurity, it is valuable for the manufacture of glass. One or two localities in this state have glass sands that are shipped to the larger factories. Some Ohio sandstones are used for furnace linings, others supply material for highway construction.

In stone and brick construction, cements are necessary. The common cements are lime, plaster of Paris, Portland cement, and hydraulic lime. These cements are used in large quantities in modern structures. Portland cement is used in many stages of building construction. Paving and bridge-building also

require Portland cement. Plaster of Paris is used for interior decoration, while lime is the basis of plaster used in interiors, and of mortar used in laying up brick.

Portland cement is made by grinding and mixing together limestone and shale. The mixture is then burned at a very high



FIG. 113. A lime-burning plant at Carey, Ohio

Lime is produced by placing limestone rock in kilns so designed that the flames from the furnaces come in direct contact with the limestone. The result of this burning is the product commonly known as "quick" lime. Lime in this form absorbs moisture from the atmosphere and soon becomes unfit for plastering and mason purposes. Hence, immediately after burning the lime, modern plants slake or hydrate the product, applying the exact amount of water which will satisfy a given weight of lime.

(Courtesy of the National Lime and Stone Company, Carey, Ohio)

temperature. The resulting "clinkers" are finely ground, and Portland cement is ready for use. One of the chief uses for Portland cement is in the construction of permanent highways. The west-central section of Ohio has large deposits of limestone suitable for the manufacture of cement. Sandusky and Castalia have the largest plants in the state.

Gypsum is a mineral product which occurs near Sandusky Bay (see Fig. 107). It is white or mottled in appearance, and soft. From gypsum a number of important cements are manufactured. Gypsum is ground fine and heated to form plaster of Paris, which is widely used as an interior decoration.



Ohio produces lime in large quantities for building purposes. Limestone formations occur in the western part of the state. From some of these formations, limestone has been taken out for building purposes. The State Capitol at Columbus and some of the important buildings in Cincinnati have been constructed entirely of limestone. When limestone is crushed and burned, it changes into the lime used to make mortar and plaster. Lime is used in chemical plants and sugar-beet factories. Ohio produces a large quantity of lime for home use and for shipment to other states. The largest lime-burning plants in the state are situated on Kelleys Island in Lake Erie, also near Springfield, Marion, and Carey (Fig. 113).

#### SPECIAL PROBLEMS FOR INVESTIGATION

1. Make a list of the rock products used in the construction of a school in your community. Try to find where each of these rock products was obtained. Which of these rock materials do you consider the most durable?

2. A school collection.

*a.* Let the class collect small specimens of all the rocks found in the school neighborhood. Label all of them with their proper names. What kind of rock forms the bed rock of your community? If any rocks are mined or quarried in your vicinity, make a report of how the work is done.

*b.* Collect pictures and articles concerning the use of minerals in Ohio.

3. Experiments to try.

*a.* Find which is the more durable, sandstone or Portland cement. (A careful examination of the buildings of your neighborhood will aid you.)

*b.* How many tons of coal are used each year in your home or school? If there are a million school children in Ohio, how many tons of coal does it take to keep them warm in the winter?

*c.* Find the difference as to size and durability between the common brick used in house construction and paving brick.

*d.* Why does gas sometimes burn with a yellow flame?

*e.* Inspect the trade-marks on the under side of dishes and report how many were made in Ohio.

*f.* Gather some clay from shale banks in your neighborhood and fashion it into some object. Let it dry and then try burning it in a hot fire.

*g.* Obtain some quicklime and slake it by adding water.

*h.* Find out how lime is used to make plaster or mortar. Do the same for Portland cement and plaster of Paris.

*i.* Can you change a piece of coal into coke? Try it.

*j.* Put some acid on sandstone and limestone. What difference can you see in the results?

#### 4. Projects.

*a.* Make a drawing of a coal mine as you imagine it would appear.

*b.* Make a drawing of a barrel containing petroleum and around it print all of the products made from it.

*c.* Explain how salt is made in Ohio.

*d.* Make a drawing of a cross section of a well-built road and show all of the rock products that go into a good road.

*e.* A debate: Which is of the greater benefit to man, sandstone or shale?

*f.* A story: How I prevented the waste of coal. What will take the place of coal in fifty years?

#### AIDS TO THE STUDY OF THE PROBLEMS

ATWOOD, WALLACE W., *New Geography*, Book Two, pp. 51-52, 286-294.  
Reports of the Ohio Geological Survey.

Reports of the State Inspector of Mines.

Secure a geological map of Ohio from the State Geological Survey at Columbus. This map will show the kind of rock in your community. Study of the map will show where sandstone, limestone, shale, coal, and gypsum are obtained in Ohio.

## CHAPTER VIII

### MANUFACTURING

*Problem I. How the pioneer home met its need for food and clothing*

After the pioneer had built his log cabin, his next concern was to provide food and clothing for himself and family. Corn, beans, and pumpkins were the staples chiefly relied on; there was also an abundance of wild fruit, cherries, plums, and berries of every kind, while the maple trees provided sugar for the making. Wheat bread was unknown in those early days; its place was supplied by corn bread baked in various ways. At first there were no mills to grind the corn; it was pounded into meal by means of a heavy wooden pestle in a mortar made by hollowing out a stump or log. Stock-raising was at once commenced on a small scale, and soon hogs, cattle, and sheep were quite numerous. The women did the milking and made the butter and cheese. Fruits were sun-dried, and the meat from wild and domestic animals was pickled, smoked, dried, and salted. Stills were plentiful, and as much corn was made into whisky as into bread.

The entire family went barefoot in the summer, but in winter the pioneer wore moccasins of buckskin and buckskin leggins or trousers; on his head was a cap of squirrel skin, often with the tail still dangling from it; while a hunting shirt, belted at the waist and fringed at the knees, completed his costume. The shirt was made of coarse homespun, a mixture of wool and flax called "linsey-woolsey." From this same material the dresses for his wife and daughters were made. Calico was a luxury sometimes purchased for a wedding dress at the cost of a dollar a yard. Silks, satins, and laces were not even dreamed of.

*Problem II. How division of labor was introduced*

If the soil proved fertile the first settler was soon joined by others. Gradually a little community would be formed, located near a good spring, or on some river, or at the crossing of two



FIG. 114. A pioneer mill

trails or roads. In each of these little communities there would be men skilled in certain trades. Nearly always there was a blacksmith, who would devote his time to making the crude pioneer tools, especially axes, plows, spades, and hoes. Another man would follow the trade of miller. The first mills used horse power. Next, small water-power mills were built along the streams (Fig. 114); and in the larger rivers, boats were anchored with mill wheels turned by the rapid current. Tanners changed the raw hides into leather, and wool-combers prepared the wool for weaving into cloth. As the settlement grew, the shoemaker, the hatter, and the candlemaker began to ply their trades. In this way, by easy stages, division of labor came about. The farmer could devote more time to tilling his



fields if he could take his corn and wheat to the mill to be ground instead of performing this task himself. The same would be true when he could exchange his grain with the blacksmith for the tools needed on the farm, or when he could get shoes from the shoemaker instead of making them at his home.

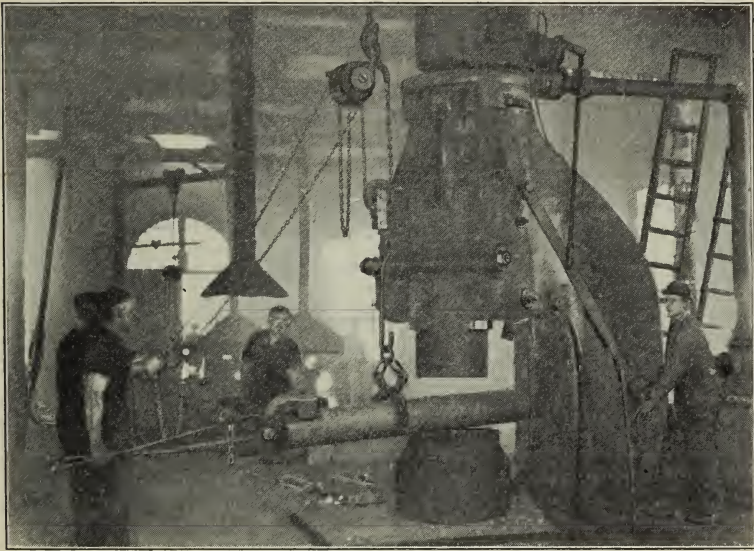


FIG. 115. Manufacturing steam shovels

This view, taken in the forge shop, shows the process of forging a shaft from a rolled steel billet under one of the largest and heaviest steam hammers in the works. (Courtesy of the Marion Steam Shovel Works, Marion, Ohio)

This division of labor forms the basis of our modern industrial society, and makes possible the conditions under which we live today. On all sides we see men engaged in hundreds of different callings, in banks and offices and stores, in field and mine and workshop. All are producers, for all are performing services which have an exchangeable value. All are engaged in the creation of wealth; that is, the production of goods which have an economic value, which are desired by society. The farmer says: "I will till the soil, raise the wheat needed to supply the markets of the world, and exchange it for the

clothing, furniture, implements, and other articles that I need." The manufacturer produces clothing, shoes, or furniture, which in turn he exchanges for the food products and other commodities necessary to his existence and comfort. The merchant creates values by exchanging goods; if it were not for him, the

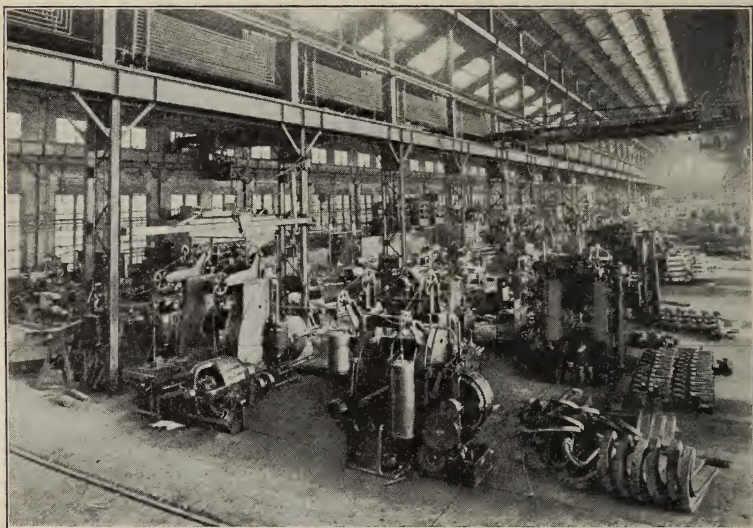


FIG. 116. Manufacturing steam shovels

This illustration shows the immense traveling crane used in the machine shop. Note the two runways. The crane on the upper runway is used for assembling 300-ton shovels. (Courtesy of the Marion Steam Shovel Works, Marion, Ohio)

farmer would have to leave his work and go to the manufacturer and the clothier for the necessities which they produce. The day laborer receives, in return for his labor, food from the farmer, shoes and clothing from the factory, and fuel from the mine. Not only do we have division of labor according to trades and industries, but there is also specialization within the trade. By doing one thing, each worker becomes more efficient than when he performs many different tasks or operations. This specialization would be impossible without coöperation; hence all the members of modern industrial society are dependent upon one another for their daily needs.

*Problem III. How factories took the place of home industries*

The farm tools made by the early blacksmith were crude affairs. He supplied the iron point for the clumsy wooden plow, also the metal parts of the hoes, rakes, spades, and axes, to



FIG. 117. The foundry in a factory where stoves and ranges for coal, wood, and gas are made

This splendid modern foundry is 1000 feet long and 135 feet wide, with a 15-foot gangway straight through the center. Directly over the gangway is a pattern rack for the storing of the patterns used. Note the small trolleys underneath this rack, from which hang bars with loops at the bottom. The molders place their ladles in these loops, and push them along instead of carrying them. This saves the strength of the molder, and there is very little iron spilled in the process. (Courtesy of the Cleveland Coöperative Stove Company, Cleveland, Ohio)

which the farmer himself fitted the handles. As more land was brought under cultivation, better agricultural implements became necessary. Until the invention of the McCormick reaper, hay and grain were cut with a scythe or sickle and raked with a hand rake. By working hard with these tools the farmer could cut and rake one acre of oats in a day. The new reaper did the same work in less than one hour. Soon afterwards the threshing machine was invented, which could thresh out more



grain in half an hour than a man with a flail could beat out in a week. There were also new machines for cultivating and tilling the soil, cultivators, horse hoers, and seed drills, which made it possible for the farmer to substitute animal power for hand labor. The repairing of these various machines and tools brought in many small shops, which developed until some, at least, became large manufacturing establishments.

After the War of 1812, American manufactures grew steadily. The household method of production with its spinning wheel, its hand loom, and its household forge, became a thing of the past. Factory production, which began with Lowell's factory at Waltham, Massachusetts, made rapid headway. The factory system, first developed in the cotton and woolen industries, spread rapidly to other employments. Leather tanneries, silk and paper mills, flour, grist, and sawmills, iron factories, sugar refineries, establishments for the manufacture of boots and shoes, of clothing, hardware, and agricultural implements,—all were operated under the new plan.

The early Ohio factories were woolen mills, tanneries, candle factories, gristmills, and foundries. At first the labor in these plants was performed by hand, but machinery was gradually introduced from New England. One of the earliest factories in Ohio was built at Cincinnati in 1814. This mill used steam power in driving eight large mill stones, and employed twenty hands on the wool-carding and wood-working machines. In 1825 the machine shops of Cincinnati were making steam engines; later they made cotton gins, sugar mills, and locomotives.

These early factories gradually spread over the state, and soon it became evident that the factory system was the most important industrial event of the nineteenth century. The chief results were (1) an immense increase in production at a greatly reduced cost; (2) the employment of women and children whose labor had been almost entirely in the home, but who now abandoned the household crafts and followed the industries into the factories; (3) the creation of a laboring class, as distinct from the class of employers; (4) the growth of factory towns and industrial cities.



*Problem IV. How natural resources and water transportation determined the location of Ohio's industrial centers*

The exchange of farm products with the factories developed industrial centers. This exchange depended upon transportation. Ohio was remote from eastern markets, and it was

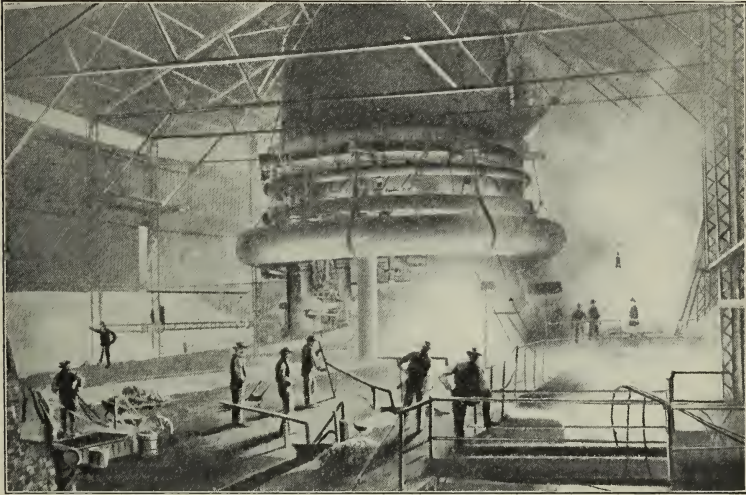


FIG 118. Blast furnaces at Ironton on the Ohio River

difficult to dispose of surplus farm products like corn. At an early date the hogs of the Miami Valley were driven to the Cincinnati packing-houses. This was the beginning which made Cincinnati the earliest pork-packing center in the West.

Iron smelting was begun to supply the iron for tools and vehicles. The first iron was smelted in 1806 on Yellow Creek, near Youngstown. About ten tons of iron were produced at this plant each week. Other iron furnaces were built in Lawrence and Adams counties. At first these furnaces used charcoal as fuel, but in 1846 coal came into use. As a result, Ironton, on the Ohio River, became the smelting center of the state. This district had an abundant supply of coal and iron ore, with the advantage of river transportation. Cincinnati was not in the iron-smelting area, but since it was located on the

Ohio River, the pig iron from points like Iron-ton could be cheaply transported to its machine shops and foundries.

Thus it was that the Ohio River Valley became the great industrial region of early Ohio. This section remained the chief metal-working region of the West until the opening of



FIG. 119. Making spring motors for phonographs, Elyria, Ohio

This plant is one of the largest of its kind in the world, having a capacity of 60,000 motors per month. This illustration shows a portion of the assembly department.  
(Courtesy of the General Phonograph Manufacturing Company)

the Lake Superior mines, which made these rich deposits of iron ore available for the region bordering on Lake Erie. Much of the Lake Superior ore is dug in open pits, where steam shovels are used to load the trains of ore cars. These are run out on long piers, and the ore is dumped into the holds of vessels to be carried down the lakes. The ore shipped to Lake Erie ports, Cleveland, Ashtabula, Conneaut, Toledo, and Lorain, is smelted in these cities which are near enough the coal beds to obtain the necessary fuel. Thus the iron industry of Ohio is today carried on chiefly along the southern shore of Lake Erie.

*Problem V. How the use of machinery brought about Ohio's great industrial development*

We owe much to the industrial development that has come to enrich our lives. The modern home reflects much of modern industry. You can realize this fact best by making a list of some of the articles commonly used in your own home. When we consider that Ohio has more people working in its factories than on its farms, we can understand something of the large output that must come from the manufacturing plants of the state. If you will compare the early shoemaker, who was able to make a pair of shoes in a week, to the modern shoe factory which makes thousands of pairs each day, or if you compare the early carriage-maker, who turned out one vehicle a month, with the modern automobile plant making 500 to 800 cars per day, you will have some notion of the wonderful growth of our manufacturing industries.

Forty-five Ohio cities manufacture more than 75 per cent of Ohio's products. Cleveland, Cincinnati, Toledo, Youngstown, Dayton, Columbus, Canton, Akron, and Lima are the leading manufacturing centers of the state. Hundreds of other cities and towns are engaged in manufacturing, but on a somewhat smaller scale. In the growth of these large manufacturing centers of the state is to be found one of the explanations of the decreased population of Ohio's farms. This decrease has continued for the last fifty years, and the industrial centers have profited by it in the proportion that the farms have lost.

*Problem VI. How coal and iron ore determined the location of Ohio's iron and steel industry*

The southern shore of Lake Erie and the Mahoning Valley are the sections of the state where the greatest activity in iron and steel is to be found (Fig. 120). As you ride on the train at night between Cleveland and Youngstown, the entire valley seems to be on fire, so many furnaces are belching forth their light and heat. The manufacture of iron and steel is Ohio's foremost industry. It employs more workers than any other industrial enterprise, and the value of its products is far greater.



The iron and steel industry really includes several closely related industries: (1) the smelting of iron ore in blast furnaces; (2) the manufacture of pig iron into steel in the rolling mills; (3) the manufacture of various articles of iron and steel in the foundries and machine shops. All of these industries



FIG. 120. Newburg steel district

Looking south from Union Avenue, Cleveland. Note the freight yards of the Pennsylvania Railroad, with the rolling mills in the distance. Explain the relation of transportation to the steel industry

depend for their existence upon the mining and transportation of iron ore, the raw material of iron and steel, and upon coal, the indispensable fuel.

### IRON-ORE MINING AND TRANSPORTATION

The mining of the Lake Superior iron ore, and the transportation of ore on the Great Lakes, is an industry in which Ohio has a large share. The Lake Superior mines are operated by Ohio companies, and more than 75 per cent of the iron ore is transported to Lake Erie ports in Ohio (Fig. 121). The most important of these are Cleveland, Ashtabula, Conneaut, Toledo, and Lorain. The first cargo of iron ore brought to a Lake



Erie port consisted of six barrels of ore, which was sold for its freight and considered worthless. At the present time, 30,000,000 tons of iron ore from the Lake Superior region are carried to Lake Erie ports each year by the lake freighters. These ore carriers are more than 500 feet in length, and carry



FIG. 121. Areas and lines of transportation of iron ore

nearly 10,000 tons in each cargo. An ore freighter is quickly loaded at the great docks on Lake Superior, and the heavy cargo is delivered at the Lake Erie ports of Ohio within four or five days. The ore docks on the southern shore of Lake Erie supply all of the iron ore which is used in Ohio, as well as that for the Pittsburgh region.

The great cargoes of iron ore were difficult to unload until special unloading machinery was developed. These unloading machines, called cranes, lower immense buckets into the hold of the freighter and scoop up a load of ten tons. These buckets discharge into chutes on the deck of the crane, whence the ore is lowered into cars on the tracks below, or delivered to a storage

pile. These remarkable machines are built in Ohio shops; they hold the world's record for rapid unloading, 2500 tons per hour (see Fig. 140).

### SMEETING IRON ORE

Iron ore contains impurities besides the iron itself. These impurities are removed by the process of smelting, which is

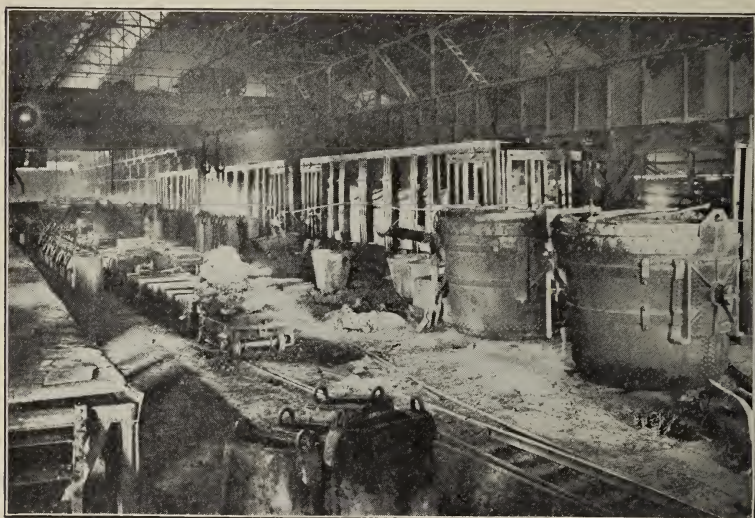


FIG. 122. Open-hearth furnaces of a steel-manufacturing plant

In these immense furnaces (along right of picture) the charge is heated for fourteen hours. The large steel ladles (right-front of picture) are then lowered into the pits, the furnaces are tapped, and the molten metal is poured out into the ladles. Powerful electric cranes carry the ladles to the ingot molds (left of picture) where the liquid metal is poured into these molds. (Courtesy of the United Alloy Steel Corporation, Canton, Ohio)

done in the iron furnace constructed of steel and infusible brick. The iron ore, together with coke and limestone, is placed in the furnace, and as the coke burns by means of a forced draft, the iron ore melts. The iron is heavy, but the impurities are light and float as slag on top of the liquid iron. The iron is then drawn off into bars called pig iron.

In Ohio the largest number of iron furnaces are on the shores of Lake Erie, where the ore and the coke are brought together

at the least expense. In pioneer days the iron was smelted in the southern and southeastern part of Ohio. A modern iron furnace makes more cast iron in one day than a pioneer furnace could smelt in an entire year. Ohio has seventy-nine blast furnaces in operation. Cleveland, Lorain, Youngstown, Columbus, and Ironton are the principal iron-smelting centers.

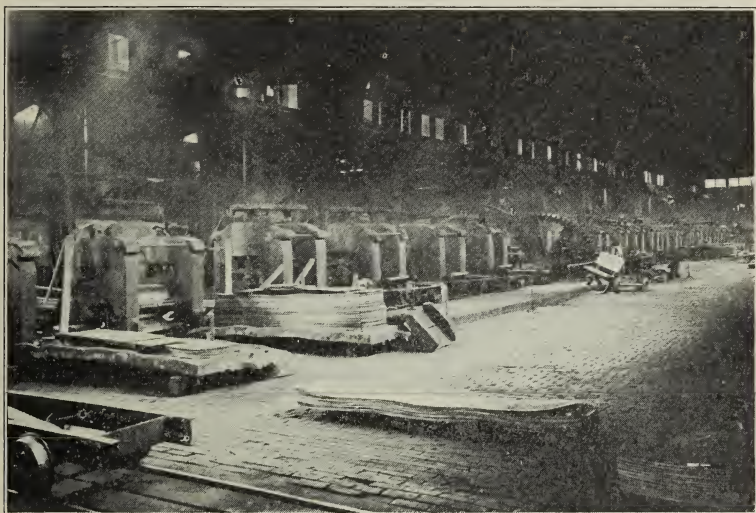


FIG. 123. Rolling mills of a steel-manufacturing plant

The bars of steel are first heated in furnaces to  $1600^{\circ}$  Fahrenheit. Then they are sent through the roughing mill to raise any surface scale. After this they are taken to the hot mills, where they are rolled out to a certain length, then matched up in packs of three sheets, heated, and given another pass through the hot mill. Then three more sheets are added to each pack and the entire lot rolled to the desired length. (Courtesy of the United Alloy Steel Corporation, Canton, Ohio)

### CHANGING PIG IRON INTO STEEL

The brittle pig iron is of little use in modern machinery, and it must be changed into tough, flexible steel. The bars of "pig" are melted into liquid iron, which is poured into a large pitcher-shaped converter holding ten tons. Air is then forced through the liquid iron, which is changed into steel in fifteen minutes. Pig iron is converted into steel in the rolling mills, of which there are seventy-seven in Ohio. Cleveland is the largest steel



center in the state. Youngstown, Canton, Lorain, Columbus, Toledo, and Ironton also have large steel mills. The Mahoning Valley, with Youngstown as its great industrial center, produces one half of the steel made in Ohio. Our state ranks as the largest producer of Bessemer steel in the United States.

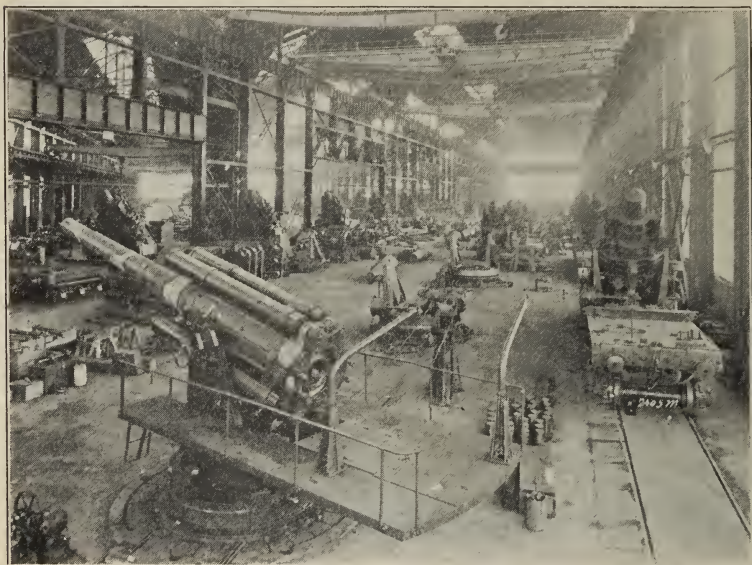


FIG. 124. An engineering plant during war time

The gun in the foreground is an 8-inch Barbette, and the other guns are 12-inch mortars mounted on railway cars. This represents only a small part of the contribution of this plant to our war program. In peace times these shops are devoted to the manufacture of electric overhead traveling cranes, a number of which are shown in this illustration, and to the manufacture of steel-rolling machinery and equipment. (Courtesy of the Morgan Engineering Company, Alliance, Ohio)

## METAL INDUSTRIES OF THE FOUNDRY AND MACHINE SHOPS

Our foundry and machine shops manufacture a great variety of iron and steel products. In the foundry, iron and steel are molded into engines, cylinders, stoves, car wheels, and other forms. The foundry product is sent to the machine shop, where it is shaped, fitted, and assembled. The machine shops have metal-working tools which cut and bend steel into any form.



Cincinnati manufactures metal-working machines, tools, and hardware. Cleveland has many foundries and large shops for the manufacture of automobile parts, engines, locomotives, vehicles, and a great variety of small tools. Hamilton has large shops in which the Corliss engine and other machines are made, besides a large factory where farm tractors are produced. Dayton manufactures cash registers and calculating machines. Springfield is noted for farm implements, trucks, road rollers, and also machine-shop tools. Camden makes steel safes and vaults. Lorain constructs steel ships, stoves, iron pipe, and refrigerating machinery. Lima has one of the largest plants in the country for the manufacture of locomotives. Marion is noted for the production of steam shovels. Elyria produces gas engines, plows, iron fences, steel tubing, and furnaces. Toledo is a large automobile center; it also manufactures structural iron work, steel castings, boilers, and steam engines.

Ohio's foundries and machine shops are the largest manufacturing establishments in the state, employing more workers than any other industry. These shops are widely distributed over the state, since many of them have grown from pioneer blacksmith shops. It is estimated that a larger number of young people will enter the metal-working industry than any other occupation. Many of our schools and colleges now assist in training people for the metal-working industry.

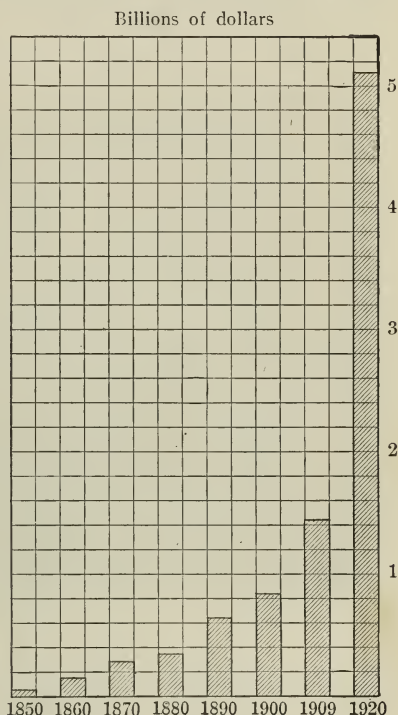


FIG. 125. Value of manufactured products of Ohio from 1850 to 1920

*Problem VII. How diversity of manufactures has given Ohio its rank as the fifth manufacturing state*

Akron, with its twenty-four rubber factories, is the largest rubber manufacturing center in the world. Dr. Goodyear began the manufacture of rubber at Akron in 1871. The

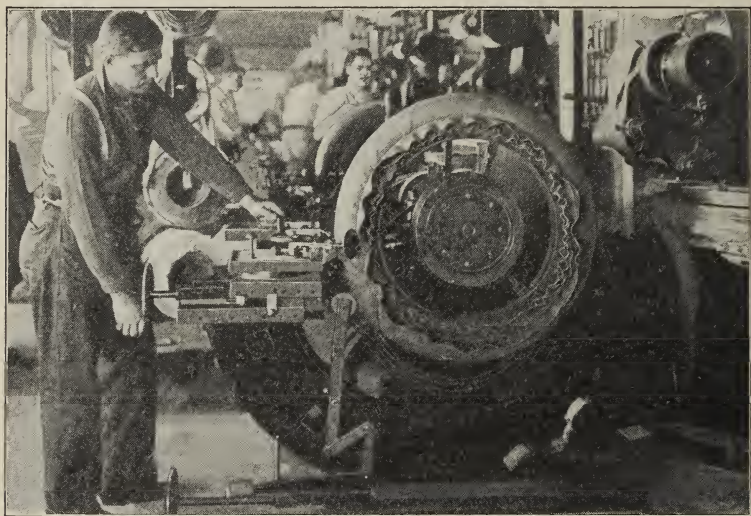


FIG. 126. Making automobile tires

This illustration shows the process of tire-building. First the rubber is worked into strips of cotton fabric by means of pressure and heat in the mills. Then these plies are built, one at a time, on a steel wheel-shaped form, each ply being carefully stitched down by machinery. (Courtesy of the Goodyear Tire and Rubber Company, Akron, Ohio)

industry developed slowly until the automobile came into use. After this, rubber manufacturing became one of Ohio's leading industries. Raw rubber is imported from Brazil and the East Indies, and manufactured in Akron plants into many articles of utility. Automobile tires form more than two thirds of Akron's rubber products. One company has factories with ninety acres of floor space, which make 27,000 tires daily. Akron produces 50,000 tires daily in its establishments, and is the rubber-tire center of the United States (Figs. 126, 127).

## AUTOMOBILES AND TRUCKS

The automobile is less than twenty years old, yet its manufacture is one of Ohio's greatest industries. The annual wheat crop of Ohio is only one third the value of the 100,000 automobiles made in this state each year, three fourths of which are passenger cars, and the remainder trucks and tractors.

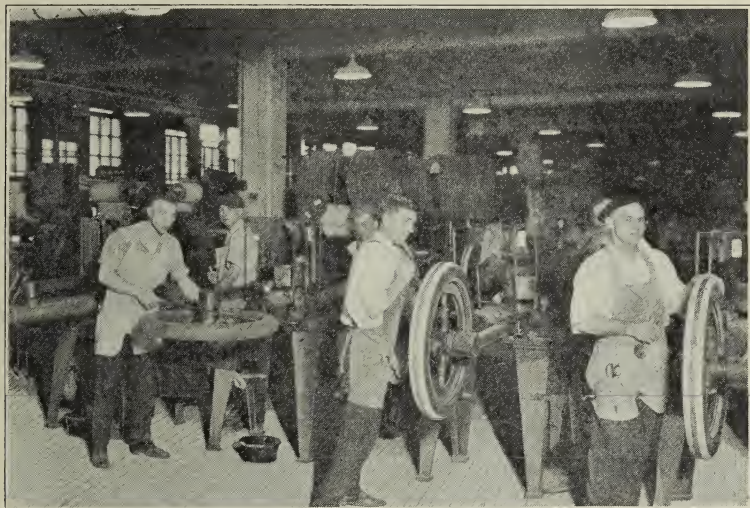


FIG. 127. Making automobile tires

This illustration shows the finishing of tires, the process in which the side walls and a tread are put on, after which the tire is ready for the cure or vulcanization. (Courtesy of the Goodyear Tire and Rubber Company, Akron, Ohio)

The automobile industry depends upon cheap and abundant steel. Ohio inventors, aided by skilled machinists, have helped to perfect the automobile. At least ten standard cars have been designed, perfected, and are now being built in the automobile factories of our state. Immense factories turn out large numbers of cars with amazing rapidity. The modern automobile plant is one of the best-organized industrial establishments. Each mechanic is skilled in the operation of high-speed machinery. The automobile parts are made in large numbers by the different departments and assembled into the complete machine.



Cleveland is the automobile center of Ohio, manufacturing one half of the output of the state. It has eleven different plants for passenger cars, two for trucks, one tractor factory, and a motor-cycle shop. Toledo also produces a large number of automobiles, while Dayton, Columbus, Springfield, Lima, Fostoria, and Elyria make automobiles or automobile parts.

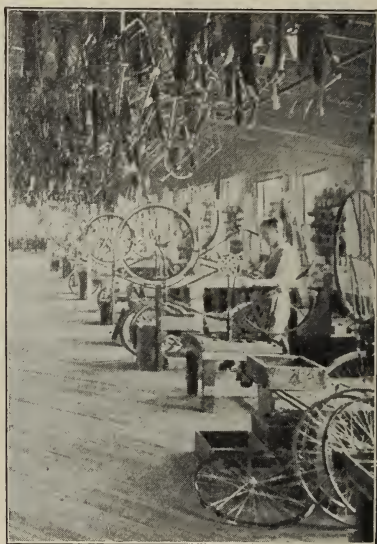
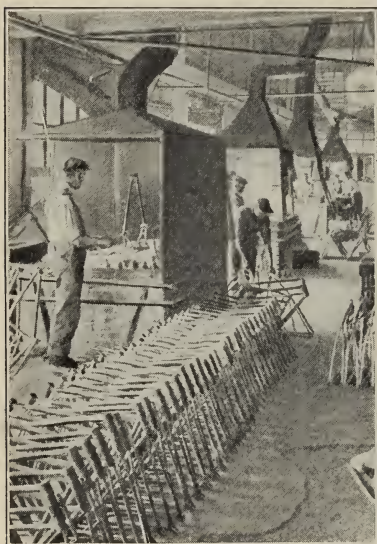


FIG. 128. Making bicycles at Dayton, Ohio

This immense plant is the largest bicycle factory in the world, with a capacity of 600 machines each working day. The picture at the left shows a part of the brazing department. Before the bicycle frames come to this department the tubing is cut to length and pinned together with the head and rear forks. The joints are then immersed in the furnaces which contain white-hot brazing material. This makes the frame practically an unbreakable unit. The picture at the right gives a view of the assembly department. Here all the component parts—about 1050 in number—are assembled into fully completed bicycles. In this factory 1200 sewing machines can also be made daily, besides electric clothes-washers and other products. (Courtesy of the Davis Sewing Machine Company)

### MEAT-PACKING

As early as 1803 Cincinnati had established the meat-packing industry on a considerable scale, sending its first shipment down the Ohio and Mississippi rivers to New Orleans. For a



number of years, Cincinnati was the largest meat-packing center of this country. Since 1850 its production has relatively decreased, because other cities in the corn belt have had a greater abundance of raw material and better transportation facilities. Cleveland, Toledo, and Columbus are also meat-packing centers.

Other industries closely allied to the meat-packing industry, such as soap and candle making, tanneries, and shoe factories, were early established in Cincinnati. *Explain.* Today Cincinnati leads all cities in the state in the manufacture of boots and shoes.

### CEREALS

The first flour mills were located upon the banks of the streams, and were operated by water-power. In 1815 Ohio's first steam flour mill was built at Cincinnati, with a capacity of 700 barrels of flour each week. As the western wheat fields developed and as better transportation by rail and lake was made available, the flour-milling industry shifted from southern to northern Ohio. Toledo is now the largest milling center of the state. Akron does the special milling of buckwheat, oatmeal, and breakfast foods. Many of these are exceptionally well known, and are shipped to all parts of the world. Although Ohio does not grow enough corn or wheat to supply its own needs, yet the mills of Ohio produce enough flour for its people. *Explain.*

### CLOTHING

Early Ohio was remote from the cloth markets of the eastern cities, and each community, as has been pointed out, made its own homespun or blue jean.

The first great clothing center of the state was at Cincinnati, and much of the cloth used by these tailors was brought from woolen mills located at Zanesville, Chillicothe, and Steubenville. At this early day, ready-to-wear clothing was unknown. Everything was made to order. This was a slow process as compared with the large output of the modern clothing factories. A single plant now makes from ten to fifteen thousand

suits daily, and practically all the work is done by machinery. This is especially true of the sewing, which is done by means of electric machines, and of the cutting, in which from fifty to seventy-five suits are cut at one operation by the use of an electric knife. Machinery is also employed for the work of pressing, making button-holes, and sewing on buttons.



FIG. 129. The manufacture of clothing, Cleveland, Ohio

Cleveland leads all other cities in the state in the production of women's clothing, while Cincinnati leads in men's clothing. This illustration shows the pattern-making department, where exact duplicates of Printz master patterns are produced by skilled workmen. (Courtesy of the Printz-Biedeman Company)

The plants in Cincinnati are given over largely to the manufacture of men's clothing, while the plants in Cleveland make women's apparel (Fig. 129). Other large clothing factories are located in Toledo and Columbus. The mills of Ohio require all of the state's output of wool, and large quantities are shipped in from other states and even from foreign lands. Many articles that originally were made by hand, such as stockings, sweaters, and caps, are now turned out with great rapidity on machines. *Explain how the use of machinery is a benefit to the laborer. Does it handicap him in any way?*

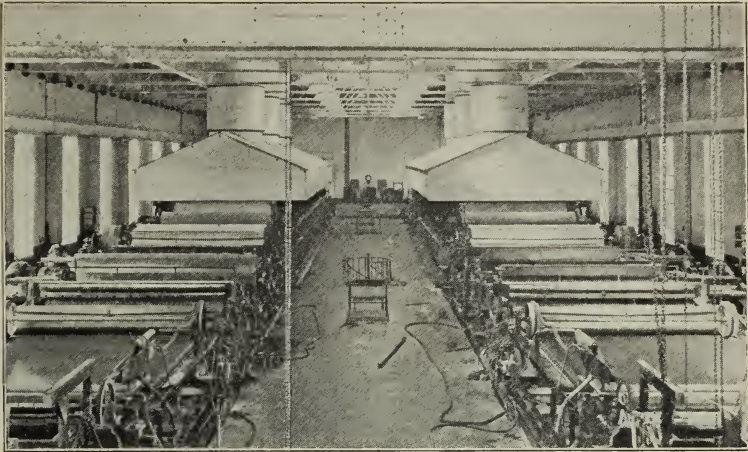


FIG. 130. Paper-manufacturing at Chillicothe, Ohio

This illustration shows two Fourdrinier paper machines which manufacture high-grade book and magazine paper. The machines are electrically driven, and each has a capacity of 35 tons of paper every twenty-four hours. The illustration shows the wet end of the machine. The water is eliminated at this end, and another part of the same machine thoroughly dries the paper. (Courtesy of the Mead Pulp and Paper Company)

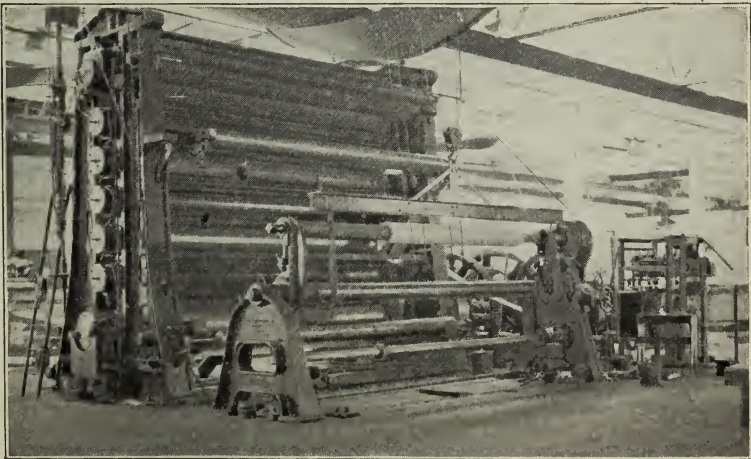


FIG. 131. Paper-manufacturing at Chillicothe, Ohio

This web-calender machine is used where highly finished paper is desired. Book paper is manufactured in machine finish and supercalender. Machine-finished paper is just as it comes from the end of the machine, whereas the supercalendered paper passes through this web calender two or three times, according to the finish desired. (Courtesy of the Mead Pulp and Paper Company)



## PRINTING AND PUBLISHING

There are published in Ohio today about 6000 newspapers and magazines. There are 185 daily newspapers, which are read by at least 2,000,000 Ohio people. Cleveland, Cincinnati, Columbus, and Springfield have large printing plants, and are centers for the publication of books, catalogues, and magazines. Ohio holds an important rank in the printing and publishing business.

## ELECTRICAL MACHINERY AND SUPPLIES

The last few years have witnessed phenomenal developments in the use of electricity, and in its application to the needs of the home, the farm, and the factory. Today most of our homes are lighted by means of the electric light. We travel from place to place in the city, and from town to town in the country, on the electric railway. We are in communication with every part of the state by means of the telephone. The electric motor and dynamo have played an important part in the building of various kinds of machinery. Washing and ironing are done in many homes by means of electrical appliances. In the summer time the house may be cooled by the electric fan, and the iceless refrigerator comes in to contribute its part to our comfort. Electric devices are constantly on the increase, and it is often said that we are living in the age of electricity.

The common incandescent light is made by thousands in the factories of Cleveland, Toledo, and Dayton (Fig. 132). It is interesting to know that the man who invented the electric arc light in 1876 still lives in the city of Cleveland. Electric motors, so common in every factory, home, and automobile, are made in plants scattered throughout the state. The largest of these plants are located in Dayton, Toledo, Cleveland, and Cincinnati. Copper wire insulated with rubber, and like material used for telephone connections and the winding of armatures, is manufactured in large quantities in Dayton and Akron. The making of storage batteries, dry-cell batteries,



electric stoves, spark plugs, and wireless telephones gives employment to thousands of workers in factories widely distributed throughout the state.

### BOOTS, SHOES, AND LEATHER

In pioneer days the making of a good pair of boots required several days' work. Production in our modern shoe factories

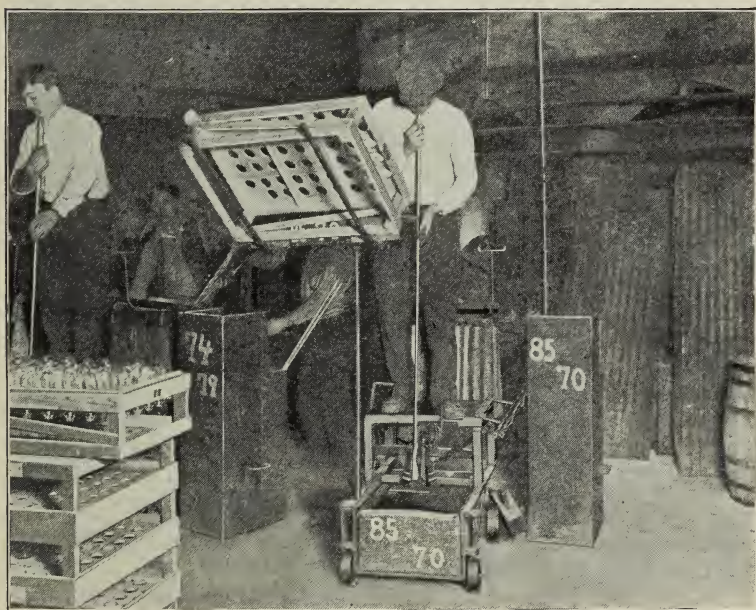


FIG. 132. Manufacturing Mazda lamps, Nela Park, Cleveland, Ohio

This picture shows the process of blowing lamp bulbs. A small amount of molten glass is gathered on the blow-rod, and the bulb is blown within a cork-lined mold previously dipped in water. The steam cushion which forms between the hot glass and the mold, together with the twirling of the bulb, gives the glass a smooth polished surface

is in marked contrast. The change has been brought about by the use of machines which turn out thousands of pairs of shoes daily. The machine for sewing the leather was first used about 1850. Cincinnati, Columbus, and Portsmouth have large shoe factories.

## SPECIAL PROBLEMS FOR INVESTIGATION

1. Local factories. If your locality is an industrial one, try to explain the presence of the three most important industries. Which of the following factors has been most important in determining these industries: capital, fuel, raw materials, labor, transportation, or skillful workmen? Try to visit one of these plants and write a

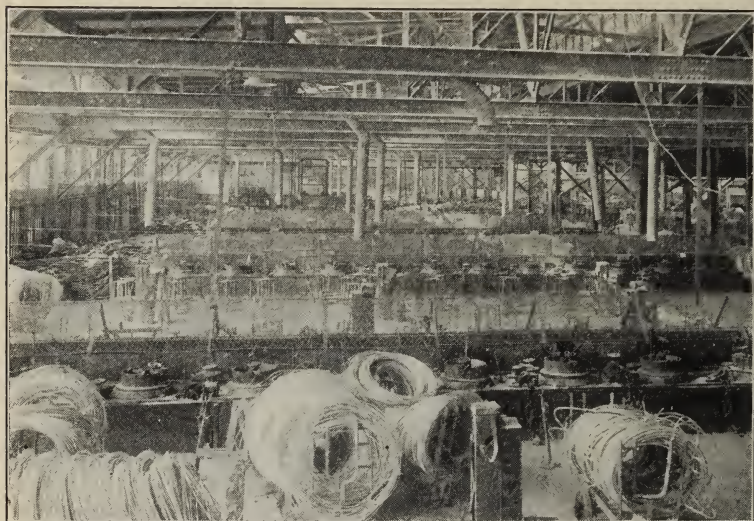


FIG. 133. A wire-manufacturing plant at Cleveland, Ohio

These are coils of wire as they appear after the final process of manufacture. (Courtesy of the American Steel and Wire Company)

story of its products. If you have an opportunity, visit any of the following plants and find how the raw material is made into manufactured articles: blast furnace, woolen mill, pottery, steel mill, flour mill, knitting shop, automobile factory, brickyard.

Explain why the most important industries in your locality have increased in size. What articles made in your community are consumed at home? What articles are shipped to foreign countries?

2. How many of the following names were unknown in 1850: dynamo, motor car, electric light, wireless telephone, iceless refrigerator, gas engine, rubber tire, chewing gum, electric battery, steam presser, artificial silk, automobile truck, electric runabout, farm

tractor, milk powder, ready-made clothing, Sunday newspaper, electric washer, vacuum cleaner, cream separator, cash register, typewriter, binder, corn harvester, electric trolley?

3. Have you seen all of the above manufactured products? All of these articles are made in Ohio. Can you tell where?

4. Something for a class to do. Organize a Junior Chamber of Commerce in your class and have as its object the collection of information concerning the industries of Ohio. Each member of this Chamber of Commerce should select some industry of Ohio and secure information for a report to the class. After the report is made the material should be part of a school collection. This Chamber should let its committees collect the literature from the Chamber of Commerce organizations in thirty of the largest cities in Ohio. Such material would form a good working collection for up-to-date information on industries in the larger centers of the state.

A class might construct a large outline map of Ohio, showing the cities of each county with a population of over 20,000 people. The products from the cities might be written on this map in red ink. Pictures of products from each city should be obtained from magazines and so arranged about the edge of the map that the industries may be seen from the pictures.

Bring to school several of the weekly and monthly magazines. Select from these magazines the names of Ohio firms that advertise.

5. The future industries of Ohio. Make a list of the industries which will be important in your community in fifty years. Have some older person in your home give his opinion of the list you have prepared.

6. Why has there been such a rapid change in Ohio from home industry to manufacturing?

Do you know of any countries where home and hand industry still prevail? Compare the condition of the people in those countries with that of the people of Ohio.

7. A school collection of local industrial products. Select any industry in your community and collect the raw materials used in manufacturing the various products. Label carefully all the specimens so that they tell the story of manufacturing from the crude to the finished article. Some manufactured articles of small size can be illustrated very nicely by mounting the exhibits on a piece of heavy cardboard. If one or two clear pictures are included the exhibit may be made very attractive. Among the industries which

might be suggested for this work: rubber; iron, from the ore to the finished article; clothing, from the wool to the cloth and the finished garment; wheat, from the grain to the flour and the many products; leather, from the raw hides to the finished article. Each exhibit should be carefully and clearly labeled.

8. Make a list of articles manufactured in Ohio which are shipped to foreign countries. Make a list of raw products and of manufactured goods which other countries ship into Ohio.

#### AIDS TO THE STUDY OF THE PROBLEMS

ATWOOD, WALLACE W., *New Geography*, Book Two.

BOGART, E. L., *Economic History of the United States*, ch. XXVI.

CALDWELL and EIKENBERRY, *General Science*, pp. 173-242.

FARIS, J. T., *Real Stories from Our History*, chs. XLII, XLIII.

MOWRY, W. A., *American Inventions and Inventors*.

SPARKS, E. E., *Expansion of the American People*, ch. XXIV.

WRIGHT, C. D., *Industrial Evolution of the United States*, chs. X-XI.

WRIGHT, H. C., *American Progress*, ch. XII.

Fourteenth Census of the United States, *Manufactures: Ohio*.

Report of the State Inspectors of Factories in Ohio.

Statistical Abstract of the United States.



## CHAPTER IX

### TRANSPORTATION

#### *Problem I. How the early trading posts developed into commercial centers*

In our early colonial history, trading posts were usually established at the head of navigation, as at Hartford on the Connecticut, Albany on the Hudson, and Richmond on the James. From these centers individual traders pushed still farther west, bartering with the Indians for furs. In this way the traders became the pioneers in the westward movement. They explored the unknown regions, discovered the best means of reaching the interior, and led the van of colonization and settlement.

So in the early days of the Ohio country, the first trading posts were established along the waterways where the Indian trails touched the rivers or Lake Erie. This explains the origin of Cincinnati on the Ohio River, of Columbus on the Scioto, and of Cleveland and Toledo on Lake Erie. Each of these cities was first established as a trading post, and because of its favorable location with reference to navigation and trade with the interior, each developed into an important commercial center.

#### *Problem II. How Ohio's roads were built*

Buffalo paths were the first Ohio roads. The paths made by these animals through the dense forests became Indian trails. The most important trails ran north and south, connecting Lake Erie with the Ohio River. The Indian trails were far enough from the streams to avoid swamps and lowlands, hence the trails were "highways." These early trails followed by the red men in pursuit of game became the routes used by the pioneers and explorers, who in turn prepared the way for traders and settlers.

Thus the early roads were only cleared paths through the forests. Trees were felled, the brush was cut, and the road was made. If the trail ran through a swamp, trees would be felled and a corduroy road built by laying the logs side by side. The corduroy road kept the heavy vehicles from sinking into the mud, but it was most uncomfortable for the travelers. Since there were no bridges over the streams, the horses had to be



FIG. 134. Section of the National Road, near Zanesville, Ohio

This well-built macadamized highway is in marked contrast to the early roads used by the pioneers. For many years the construction of roads was left to the counties and townships. Recently Ohio has followed the example of New Jersey, Massachusetts, and New York by adopting the state-aid plan. The state contributes a part of the cost of improving the more important highways, and exercises some supervision over their construction. The increased use of motor vehicles has greatly aided the movement for improved roads, with better surfaces and grades and easier curves

driven across at the fords, where the water was shallow. Thus a journey over these roads was full of danger and hardship.

With the introduction of the sawmill, plank roads came into use. These were followed by graveled pikes, and these in turn by roads covered with broken stone, asphalt, or brick. To encourage the building of roads, Ohio followed the example of other states by chartering turnpike companies. These companies were authorized to construct roads, and to collect charges or tolls from the persons who used them. At the points where tolls were collected, a gate was placed across the road. This gate consisted of a pole armed with pikes, so hung as to turn

upon a post; hence the toll road was called a turnpike. In 1830 Ohio had about 300 miles of pikes, the longest of which extended from Sandusky to Columbus. In southwestern Ohio many of the present roads between the cities are the old pikes.



FIG. 135. Modern road-making

An engineer named Macadam who lived in America during the Revolution gave his name to the type of road commonly built today. The macadamized road consists of two or more layers of broken stone, with binder and a finishing coat of screenings, tar, or asphalt. The steam road-roller shown in the picture is used to crush and lock the stones together. What is the advantage of using tar or asphalt for the surface coat?

The most famous turnpike was not built by a private company, but by the United States government itself. This "National Pike" or Cumberland Road was begun during Jefferson's administration in order to open up the public lands in Ohio and the West. Starting at Cumberland, Maryland, the National Road ran westward, following for part of the distance Braddock's old military route, until it reached the Ohio River at Wheeling, West Virginia. From this point the road was

extended due west through Zanesville, Columbus, and Springfield, Ohio, thence to Indianapolis and Terra Haute, Indiana, until it finally came to an end at Vandalia, Illinois (see Fig. 31).

This road was eighty feet in width, built of broken stone, upon a stone foundation. It connected the Ohio wilderness with the East, and soon thousands of settlers were pouring along this highway into central Ohio. "Old America seems to be breaking up and moving westward," wrote one traveler as he passed along this road in 1817. "We are seldom out of sight, as we travel on this grand track toward the Ohio, of family groups, behind and before us."

### *Problem III. How the roads aided the settlement of Ohio*

In those early days, Ohio land was cheap as well as fertile, and this cheap land was the magnet which drew settlers westward. Until 1820 government land sold at two dollars an acre, while after that year the price was only \$1.25 an acre. To thousands of Europeans, as well as to our own people, these cheap lands beckoned like the pot of gold at the end of the rainbow. The close of the Napoleonic wars left Europe staggering under an enormous burden of debt and taxes. Beginning about 1815, thousands of Englishmen, Irishmen, and Germans came to our shores to swell the stream of settlers pouring across the Alleghenies.

As these men traveled westward through the rich farming regions of Pennsylvania and Ohio, they were amazed at the prosperity which they saw. "This be a main queer country," said a Yorkshireman who with his family was on his way to Zanesville, Ohio. "This be a main queer country, for I have asked the laboring folks along the road how many meals they eat in a day, and they all said three and sometimes four, if they wanted them. And only think, sir, many of these people asked me to eat and drink with them. We can't do it in Yorkshire, sir, for we have not enough for ourselves."

The Conestoga wagon (Fig. 136), named from the Pennsylvania town where it was first built, was the vehicle commonly



used by the western settlers. This wagon had a curved bottom higher at either end than in the middle, which enabled it to traverse the rough roads more safely than the old straight-bed wagon. Its wheels were strongly built with tires from four to six inches in width; the framework above was covered with canvas, so that a caravan of these wagons looked like a fleet of ships mounted on wheels. Each wagon was drawn by six or eight horses. These land fleets brought great loads of freight over the National Road to Ohio. The products of Ohio's farms—sheep, cattle, and hogs—were in turn driven over this road to eastern markets.



FIG. 136. The Conestoga wagon

This illustration is from a photograph of a Conestoga wagon built in Ohio and now in the possession of the Chicago Historical Society

Taverns and stage stops were established along the route, and the counties bordering the National Road soon became the most populous part of Ohio.

Besides the National Road there were two other principal routes by which settlers moved into Ohio. One of these was the famous Wilderness Road, laid out by Daniel Boone through Tennessee and Kentucky to the Ohio River, where it connected with the trail northward to Lake Erie. A third route, the last to be developed, was the Mohawk Valley Trail from New York to Lake Erie. The Erie Canal, opened in 1825, followed this route for a considerable part of its course.

In a few cases, to encourage the opening of roads in Ohio, grants of land were made by the government in the same way that land was afterwards given to encourage the building of railroads. An example of this was the grant to Colonel Ebenezer

Zane, who built the road known as Zane's Trace. This ran through Zanesville, Lancaster, and Chillicothe to Maysville on the Ohio River. It was the chief route for settlers moving into southeastern Ohio and Kentucky. In 1810 the counties bordering Zane's Trace contained one fourth of the people of Ohio.



FIG. 137. Rocky River Bridge

This bridge is on the main highway approaching Cleveland from the west. This is a modern concrete bridge of the arch type frequently used where a movable bridge is not required. What other kinds of bridges have you seen?

#### *Problem IV. How the steamboat aided western trade*

The first New England settlers in Ohio came over the Allegheny Mountains to the Ohio River, where they built boats and floated downstream to Marietta in 1788. The Ohio River soon became a highway for settlers in southeastern Ohio. The first steamboat on the Ohio was the *New Orleans*, which made the trip from Pittsburgh to New Orleans in 1811. This boat was a small side-wheeler and burned wood. The first steamboats on the Ohio River were regarded as doubtful ventures, but six years later there were twenty-five steamers on the Ohio and Mississippi rivers. Freight rates were high, and at first the steamboats were used chiefly for passenger traffic. The Ohio country shipped downstream great quantities of cheese, dried

fruit, pork, cider, and whisky, to be exchanged at New Orleans for sugar and cotton, the two great southern staples.

Lake Erie was late in becoming a commercial highway. It was not until 1818 that the first steamer on Lake Erie, *Walk-in-the-Water*, made her appearance. *Walk-in-the-Water* was



FIG. 138. Steamer *City of Buffalo*

135 feet long and carried 100 people. Within a century marvelous changes have replaced this pioneer boat with passenger (Fig. 138) and steam freighters of great size. The advantages of cheap lake freight have contributed much to the prosperity of Ohio.

*Problem V. How canal construction aided the development of Ohio*

The completion of the Erie Canal in New York opened an easy route to the West by way of Lake Erie. Settlers from New England now made their way through New York State, following the Erie Canal to Buffalo, where they embarked upon Lake Erie. This migration led to the rapid settlement of northern Ohio. Lake trade and commerce developed rapidly. Northern Ohio became a ship-building region, and in 1824 the first steamboat was built in this section.



The influence of the Erie Canal spread to Ohio, which began canal construction before the famous New York canal was completed. The north-to-south waterways in Ohio rendered canal-building easy. The Ohio and Erie Canal was constructed from Cleveland to Portsmouth, and the Miami and Erie Canal

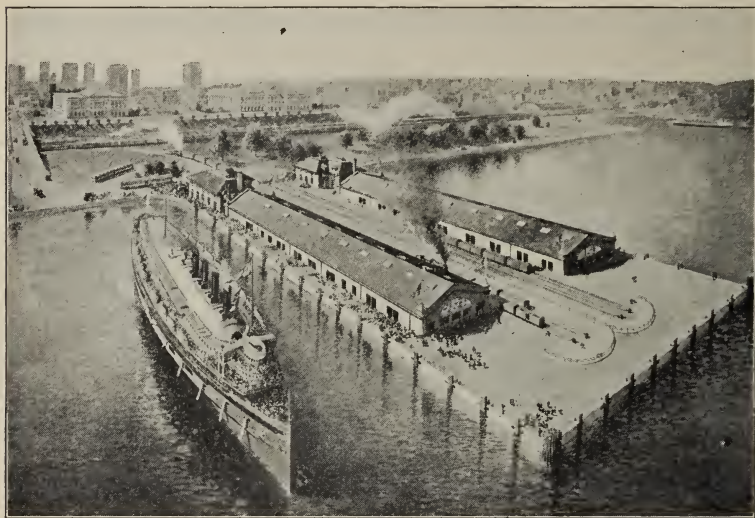


FIG. 139. Piers constructed for lake traffic

This view shows the terminals of the Cleveland and Buffalo line, and the Detroit and Cleveland line, at the foot of Ninth Street, Cleveland

from Cincinnati to Toledo. Governor De Witt Clinton of New York had supervised the building of the Erie Canal, and in recognition of this he was invited to the ceremonies which marked the beginning of work on the Ohio and Erie Canal. He came by steamboat to Cleveland, where he took stage for Newark. On July 4, 1825, Governor Clinton lifted the first spadeful of earth on the Licking Summit, while to Governor Morrow of Ohio fell the honor of digging the second spadeful. Eight years later the first fleet of three canal boats arrived from Cincinnati. These were big barges, attached by long tow ropes to mules driven along the shore of the canal. One enthusiastic onlooker said: "There is a real artificial



river, hundreds of miles long, hand-made of the best material, water-tight, no snags or rocks or other imperfections, durability guaranteed."

The completion of Ohio's two canals, with their branches, gave the state 800 miles of navigable waters within its own borders. The entire system was finished in 1845 at a total cost to the state of about \$16,000,000. The canals brought rapid growth to the interior towns, as well as to the shipping ports on the lakes and rivers. They drew thousands of settlers to the state, and furnished an outlet for the products of their farms. The grain and cattle from Ohio's farms moved eastward in a tide that was flowing from April to December. Ohio's commerce increased enormously, but her canals were to have a comparatively brief existence. Canal traffic was safe and cheap, but slow and closed by ice during several months of each year. Soon a new invention appeared, the railroad, and its faster and better mode of transportation eventually made the canals obsolete.

*Problem VI. How the lake ports became important shipping centers*

Ship-building on Lake Erie began during the War of 1812. In order to win his famous naval victory at Put in Bay, young Commodore Perry first had to create a fleet. He brought ship-builders, naval stores, guns, and ammunition for a distance of 400 miles through the wilderness to Erie, Pennsylvania. Here he cut down trees from the forest, and built his little fleet of nine vessels. In later years many sailing vessels were constructed in Lake Erie shipyards at Toledo, Lorain, Ashtabula, and Cleveland. The construction of Ohio's canals rapidly increased the freight and passenger traffic on Lake Erie, and these lake ports became important shipping centers (Fig. 139).

The first freighters on Lake Erie were large sailing vessels, which carried freight more cheaply than the small side-wheel steamers. In 1880 the first steel vessel on the Great Lakes was built at Cleveland. Today all of the lake ports of northern

Ohio have shipyards for the construction of steel ships. Lorain has the largest dry-dock on the Great Lakes, and other large shipyards are located at Cleveland, Toledo, and Ashtabula. The modern lake freighter is a special development in freight-carrying vessels found in no other region. It is built by first laying the keel, then attaching the side ribs, to which steel

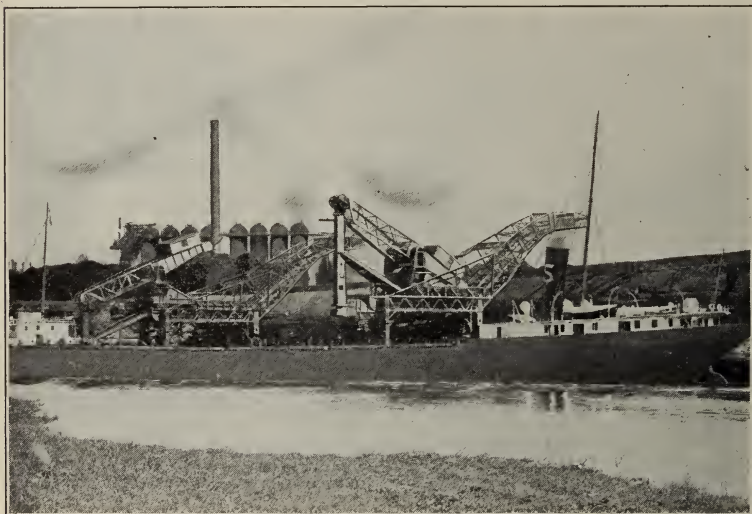


FIG. 140. Unloading a lake freighter at Lorain, Ohio

This modern lake freighter is being unloaded by means of a Hulett automatic ore unloader. (Courtesy of the National Tube Company)

plates are riveted, the deck being added last. Modern freighters carrying from ten to twelve thousand tons can be constructed within thirty days. More than 700 vessels of this type carry the bulk freight on the Great Lakes (Fig. 140). For size, speed, and capacity they are not equaled even by the ships engaged in ocean traffic.

Passenger traffic and farm products formed the first commerce on Lake Erie. The lumber of the pine forests and the grain crops of the Northwest greatly increased the lake traffic. The use of Lake Superior iron ore, the building of the Sault Ste. Marie Ship Canal, and the demand for Ohio coal in the

Northwest, gave freight that required boats of large capacity. Iron ore, coal, and grain still form the bulk of the freight carried upon the Great Lakes. The freight carried on these inland seas exceeds that of any other region in the world. The iron ore averages 60,000,000 tons, the grain 300,000,000 bushels,



FIG. 141. View of the water front of Cleveland

This shows a portion of the Cleveland harbor with the ore docks of the Pennsylvania Railroad, and the breakwater opposite. Trace the winding course of the Cuyahoga River. Explain the relation of this harbor to Cleveland's development

coal 26,000,000 tons, while more than 500,000 passengers are carried annually. More than three fourths of the iron ore comes to Lake Erie ports, Cleveland, Ashtabula, Conneaut, Toledo, and Lorain (see Fig. 121). Nearly all of the coal is loaded at these ports for the Northwest.

More than three fourths of all the lake freight is bound to Lake Erie ports, and these ports ship more than one half of the total freight on the Great Lakes. Lake transportation is the magic key which unlocks the natural resources of the Northwest, and brings them to be manufactured on the southern

shore of Lake Erie. Toledo, Sandusky, Lorain, Huron, Cleveland, Ashtabula, and Conneaut are industrial centers because of the advantages of the lake trade.

The inland seas, of which Lake Erie has the largest commerce, form an industrial region that would greatly profit by the proposed deep waterway to the Atlantic Ocean. The Welland Canal would enable Lake Erie ports to load cargoes direct for South America, Europe, and other lands. This would enlarge the markets of the Great Lakes region and stimulate the industries of Ohio, whose surplus could be marketed by direct shipment abroad at a low freight cost. During the World War, food cargoes, machinery, and ammunition were loaded at the ports of Lake Erie for shipment direct to Europe.

*Problem VII. How the railroads have promoted Ohio's industrial development*

The year after the opening of the Erie Canal, an English engineer, George Stephenson, demonstrated to the world the possibilities of the steam railroad. Since the Erie Canal threatened Baltimore's western trade, the merchants of that city planned to build a railroad across the mountains to the Ohio River. An impressive ceremony took place at Baltimore on July 4, 1828, when the venerable Charles Carroll placed the foundation stone of the Baltimore and Ohio Railroad, first of the iron bands between the East and the West. Then ninety-three years of age, Charles Carroll belonged to the past; but he saw clearly into the future when he said, "I consider this among the greatest acts of my life, second only to that of signing the Declaration of Independence."

This early railway was a crude affair. Its strap rails were wooden beams fastened together at the ends, with a flat strip of iron spiked to the top of the beam. Along thirteen miles of this track, Peter Cooper's locomotive, the *Tom Thumb*, made its trial trip in about one hour. An exciting race took place on the double track near Baltimore between the *Tom Thumb* and a horse car. As the horses grew tired the locomotive forged



slowly ahead. Finally a pulley slipped off the engine, and the horses won the race after all. Still the trial trip was on the whole a success, the locomotive was soon improved, and larger cars were built for passengers and freight. By the year 1837 Philadelphia was connected with Baltimore and New York by rail. Lines were soon afterwards completed from Boston and New York to Albany, and from Albany west to Buffalo. East and West were then joined by rail as well as by the Erie Canal. The Baltimore and Ohio Railroad had climbed over the mountains by 1853 to Wheeling, West Virginia, where a junction was made with Ohio River steamboats.

The first railroad in Ohio was fostered by our northern neighbor, Michigan. The legislature of that state granted the charter of the Erie and Kalamazoo Railroad, which ran its first train from Adrian to Toledo in 1836. At the outset there was little confidence in the success of the enterprise. It was described in the Michigan legislature as "merely a fanciful scheme that could do no harm and would greatly please certain citizens of Toledo." Nevertheless the project proved entirely successful so far as the running of trains was concerned, although the road was seized for debt seven years later.

The first railroad entirely within the boundaries of Ohio was constructed in 1839 from Sandusky to Bellevue, and afterwards extended to Springfield and Cincinnati. In 1848 another

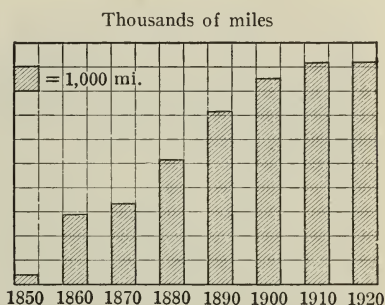


FIG. 142. Miles of steam railroad in Ohio from 1850 to 1920

Study this graph carefully. In what period of ten years was the largest number of miles of railroad built in Ohio? the smallest number of miles? Explain why there was so much railroad-building in the one period and so little in the other. Why was there so little railroad-building between 1860 and 1870? What causes led to the great increase in railroad mileage in Ohio in the thirty years between 1870 and 1900? About how many miles of railroad had Ohio in 1920? Only New Jersey, Pennsylvania, and Massachusetts have more miles of railroad in proportion to their areas than Ohio. There are about 260,000 miles of railroad in operation in the United States at the present time. Estimate what fraction of the total mileage is found in Ohio

railroad was constructed from Cleveland south to Columbus and Cincinnati. These early railroads ran north and south, connecting Lake Erie with the Ohio River. Later the east-and-west lines were built for the traffic between the western and the eastern states. Ohio was the first state to develop a network

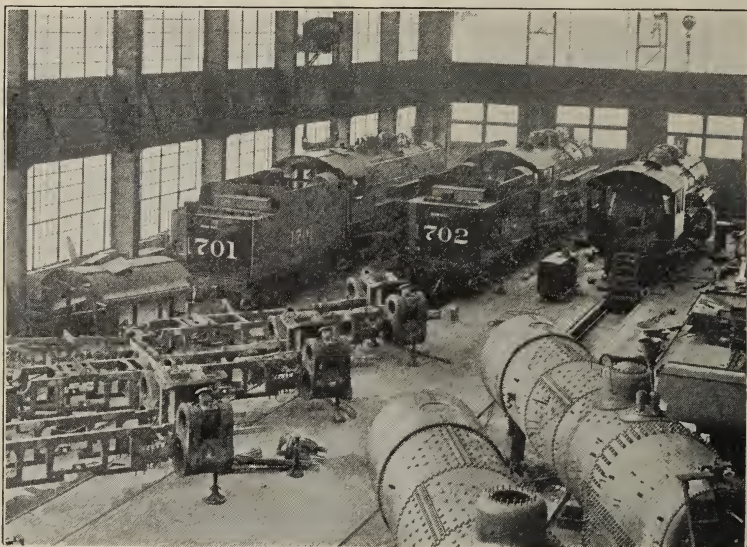


FIG. 143. Manufacturing locomotives at Lima, Ohio

This plant for the manufacture of locomotives is one of the largest of its kind in the United States. This illustration shows engines nearing completion, also complete engines ready for shipment. (Courtesy of the Lima Locomotive Works)

of railroads because of its position between the lake and the river, and between the states of the East and the West.

In sixty years more than 9000 miles of railroads have been built within the boundaries of Ohio. Today each county is reached by railroad, and every village with 2000 people has railway connections. Ohio has more miles of railroad to the square mile than any other state of the Middle West. The first railroads in Ohio carried passengers rather than freight, while the modern railroad derives more than three fourths of its income from freight. The coal mines of the state, the

Lake Superior mines, and our farm and factory products, create freight in great quantities. The railroads of Ohio carry more than the average freight per mile of the country.

The modern railroad equipped with heavy steel tracks and steel cars makes traveling rapid and comfortable. On the level lake plains of northwestern Ohio, the Twentieth Century



FIG. 144. The Twentieth Century Limited

This is one of the splendid modern trains that run between New York and Chicago.  
(From Gowin and Wheatley's "Occupations")

Limited, a special passenger train between New York and Chicago, makes the record time of ninety miles per hour.

In the period following the Civil War, many of the short railway lines of the country were combined into larger units. For example, the five lines between Buffalo and Chicago along the southern shore of Lake Erie united to form the "Lake Shore," now a part of the New York Central system. This consolidation of smaller railroads into trunk lines has grouped Ohio's roads into three great systems: the New York Central, the Pennsylvania, and the Baltimore and Ohio.









The New York Central Railroad comprises trunk lines between New York and Chicago. Its double track crosses northern Ohio, closely following the lake shore. At Cleveland a branch, the Big Four, extends to Columbus, Cincinnati, Indianapolis, and St. Louis. At Toledo, branches extend to Detroit, and southward to the Ohio River. The New York Central



FIG. 145. Entrance to Union Station, Columbus, Ohio

The tracks pass underneath this viaduct to the station in the heart of the city

lines in Ohio carry general freight, as well as grain, some iron ore, and coal. This railroad has considerable through traffic in passengers and mail.

The Pennsylvania Railroad extends westward from Pittsburgh across Ohio. This railroad has more mileage and carries more passengers than any other line in Ohio. It also carries more anthracite and bituminous coal, iron ore, and coke than any other railroad in Ohio. Along its lines are located the largest steel and iron industries in the state.

The Baltimore and Ohio extends through the coal regions of Pennsylvania and West Virginia. In Ohio the Baltimore and

Ohio lines connect Cleveland, Toledo, Columbus, and Cincinnati. The Baltimore and Ohio carries chiefly soft coal, coke, and iron ore.

Other railroads in Ohio include the Nickel Plate, the Erie, the Wheeling and Lake Erie, the Wabash, the Toledo, St. Louis, and Western, and the Hocking Valley. In northwestern Ohio



FIG. 146. Three methods of transportation

the railroads form a net with important centers at Toledo, Marion, and Lima. Toledo with its twenty-three railway lines is the largest railway center in Ohio, and the third largest center in the entire United States. The lines are straight and direct in this part of the state, for the land is level. In southeastern Ohio the railroads follow the river valleys. The railroads of the northern plains gradually converge upon the narrow plain along Lake Erie in northeastern Ohio. These lines pass through Cleveland and along the Lake Plain to Buffalo, where the principal lines enter the Mohawk Valley.

Beginning about 1895, electric interurban roads were built for passenger traffic. These lines have become important in



local freight and express business. All the large cities, and many of the smaller ones as well, are connected by interurban lines which make more frequent stops and serve a larger local territory than the steam roads. The interurban lines benefit people living near the city. The farmer has rapid transit for his market produce, and the city merchant has more customers.



FIG. 147. A heavy load in the lumber region

This shows one of the many uses which automobile trucks serve

Milk, garden truck, flowers, and other products are quickly and cheaply transported to the city markets. Then, too, the city worker can live in the country. Ohio has 4254 miles of interurban lines between its larger cities. These lines extend across the state, and are most numerous in the central and western sections. Ohio has more interurban lines per square mile than any other state.

*Problem VIII. How automobile transportation supplements the railroads*

The automobile provides a rapid transit that carries as many passengers as the interurban. Ohio has 618,000 automobiles, or one for every nine people. The automobile supplements the



railroad and the interurban. It supplies a traffic that was impossible twenty years ago. To the farmer it gives rapid delivery for market products, and it takes the city dweller to the country. The automobile has stimulated road-building, and millions of dollars are spent each year on the highways. With 31,800 miles of surfaced highways, Ohio leads the states in good

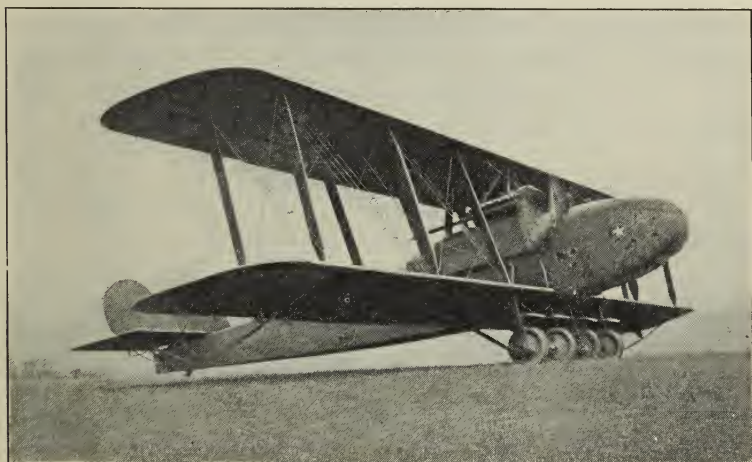


FIG. 148. Airplane used for mail

roads. The Lincoln Highway and the Dixie Highway are trunk roads which cross the state. The old National Road has also been repaired.

Long-distance hauling by automobile is a common method of transportation in Ohio (Fig. 147). Truck lines are established, and freight is shipped to important cities. Large industrial establishments have special trucks for the shipment of valuable articles of small size. These trucks ship quickly from the Ohio factory to New York or other markets. To the farmer the automobile truck gives a great advantage in reaching distant markets quickly with his products.

In the city, freight deliveries are now made almost entirely by the automobile truck. The delivery service of large stores has been greatly enlarged by the small but swift auto truck.

For the rural free delivery of mail a small passenger car is used. In the cities the mail is collected and carried to the central station entirely by automobile trucks. Cabs and busses have been replaced by the automobile taxi, and for pleasure-driving the horse has been largely replaced by the modern passenger car.

Regular air mail service is maintained by airplane (Fig. 148) between Chicago, Cleveland, and New York. This service cuts the time for the delivery of important mail from twelve hours to less than three hours, and is as regular and dependable as the established train service.

### SPECIAL PROBLEMS FOR INVESTIGATION

#### 1. Types of transportation.

- a. List all the lines of transportation which are near your school.
- b. Show the importance of all the types of transportation that can be seen from your home.
- c. Can you prove that the prosperity of your community depends upon its transportation?

#### 2. Railroads.

- a. When was the first railroad built in your community?
- b. Describe a modern railroad track. What is its cost per mile?
- c. What articles do the railroads of your vicinity carry in the greatest quantity?
- d. How many freight cars have you counted in a train near your home?
- e. Have you ever seen a solid train of oil cars, coal cars, meat cars, cattle cars? Which way were they going?
- f. Obtain a railroad folder and plan a trip. How far can you travel for \$5 on the railroad? How far on the interurban electric line? From a folder find the distance between any two stations and the time needed to travel between them. How fast does the train travel per mile?
- g. Suppose you are to ship products like milk, lettuce, strawberries, etc. Tell how perishable products are shipped and how far you think they can be sent.
- h. What is a refrigerator car?

*i.* Explain the use of each of the following cars: a gondola, a box car, a passenger car, a diner, a pullman, an express car, and a chicken car.

*j.* Is any mail sent from your post office by airplane?

### 3. Highway problems.

*a.* Show the advantage of a paved road over a dirt road. What is the difference in the loads that can be hauled over these two types of roads?

*b.* Compare travel in a stagecoach with that in the modern automobile.

*c.* Show the relation of the cities of Ohio to the route of the old National Road in Ohio.

*d.* Does the road which passes your home connect with one of the great highways?

*e.* Do surface features hinder road-building or aid it in your community?

*f.* Show how the automobile has changed transportation. List all the advantages that have resulted from this type of transportation.

*g.* Draw a cross section of a well-paved road.

*h.* How wide should a highway be? Measure the highway nearest your home and give reasons for your answer.

*i.* Explain who pays for the road in front of your home. Ask your parents to tell you.

*j.* What regulations should apply to the vehicles which are allowed upon a paved highway?

### 4. Waterway transportation.

*a.* Show how the Ohio River is an important waterway. What would you suggest as an improvement to navigation on the Ohio?

*b.* Obtain folders of the navigation lines on Lake Erie. Find the cost and how long it takes to travel on the boats from one lake port to another. Compare the time and cost with railroad transportation.

*c.* What industries depend upon lake transportation?

*d.* Explain why the passenger boats are side-wheelers and why the freighters are propellers.

*e.* Compare transportation by lake freighter and by railroad as regards time, cost, and limitations. How many cars of coal does a lake freighter carry? Compare the cost per mile of carrying it by water and by railroad.

f. Do you think that the Ohio and Erie Canal could be made of service in the transportation problems of the state?

5. Write an imaginary sketch on one of the following topics:

- a. How I shall travel in fifty years.
- b. A trip across Ohio in a canal boat.
- c. A trip on *Walk-in-the-Water*, the first steamboat on Lake Erie.
- d. Traveling with an Indian war party from the Ohio River to Lake Erie.

#### AIDS TO THE STUDY OF THE PROBLEMS

A road map of Ohio, showing the state highways.

A topographic map of your home region. (This map may be obtained from the United States Geological Survey, Washington, D. C. It shows all the lines of transportation in your region and also all the irregularities of the surface.)

ATWOOD, WALLACE W., *New Geography*, Book Two, pp. 46-48, 300-304.

CALDWELL and EIKENBERRY, *General Science*, pp. 152-158.

DRAKE, S. A., *Making of the Great West*, pp. 153-168, 198-214.

NICOLAY, HELEN, *Our Nation in the Building*, ch. XI.

SPARKS, E. E., *Expansion of the American People*, chs. XX, XXIV.

WRIGHT, C. D., *Industrial Evolution of the United States*, ch. XXI.



## CHAPTER X

### THE COUNTIES OF OHIO

**Adams.** Adams County was one of the earliest counties in the Northwest Territory. It was named in honor of John Adams, second President of the United States. The first settlement between the Scioto and Little Miami rivers was made at Manchester in 1795 by General Nathaniel Massie.

In early times the district was the home of the Mound Builders, and the famous Serpent Mound (Fig. 17) is located twenty-one miles from West Union, the county seat.

**Allen.** Allen County was named in honor of Colonel Allen, a hero of the War of 1812.

The first settlement was Fort Amanda, built in 1812 on the bank of the Auglaize by Colonel Poague of General Harrison's army.

Lima, the county seat, was formerly a great oil-producing center, and is now one of the most important oil-refining centers in the world.

**Ashland.** Ashland, the county seat of Ashland County, was at first named Uniontown. This was changed to Ashland in honor of Henry Clay, whose estate near Lexington, Kentucky, bore that name.

Ashland has the distinction of having given the first volunteer from Ohio to the Union Army. This soldier was Loren Andrews, who was famous as an educator and as President of Kenyon College.

**Ashtabula.** Ashtabula is the largest county in Ohio. It was named from the Ashtabula River, an Indian name meaning "fish river."

Jefferson, the county seat, was the home of Benjamin F. Wade and Joshua R. Giddings, national figures in the struggle against slavery.

The city of Ashtabula is noted for its splendid harbor.

**Athens.** Athens County was formed from Washington County, and named after the famous city of ancient Greece.

Early settlement of the county began about 1797, when pioneers from Marietta established homes on the "college lands" now comprising Athens and Alexandria townships. Ohio University was

chartered in 1804 at Athens, the county seat. Its establishment was made possible by the gift from Congress of two entire townships, or 46,000 acres, of public lands. Nelsonville is located in one of the largest coal-producing regions of the state.

**Auglaize.** Auglaize County, in western Ohio, was formed from portions of six of the surrounding counties. It received its name from an Indian word which means "fallen timbers on the river."

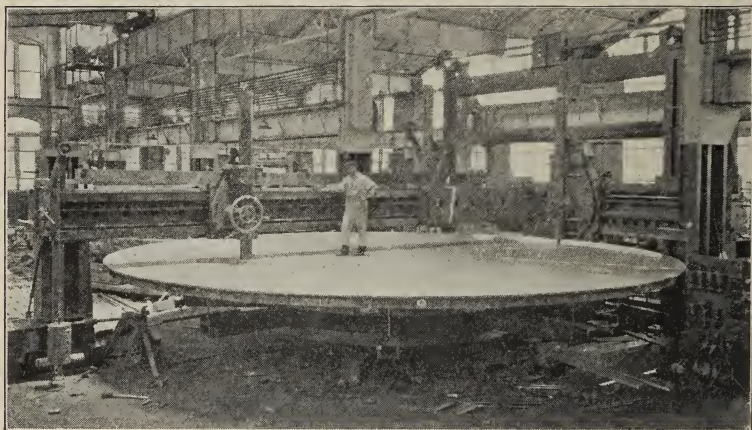


FIG. 149. Finishing a table

This illustration shows a table 35 feet in diameter turned out in the boring and turning mill of an Ohio manufacturing plant. The specifications required that the finished surface should not show a variation greater than .01 inch. The test of the completed table showed not over .004 inch variation. (Courtesy of the Niles Tool Works Company, Hamilton, Ohio)

Wapakoneta, the county seat, was named from the chief of the Shawnee tribe of Indians, Wapagh, and Konetta, his squaw.

Three excellent specimens of the prehistoric mastodon have been found in this county.

**Belmont.** St. Clairsville, the county seat of Belmont County, was named after Governor St. Clair. One of its most famous citizens was Benjamin Lundy, often called the Father of Abolition.

Elizabeth Zane, the heroine of the siege of Wheeling in 1782, lived for many years about two miles above Bridgeport on the Ohio River.

Martins Ferry is noted as the birthplace of William Dean Howells.

Bellaire operates ten coal mines and produces one half of the coal mined in the county.

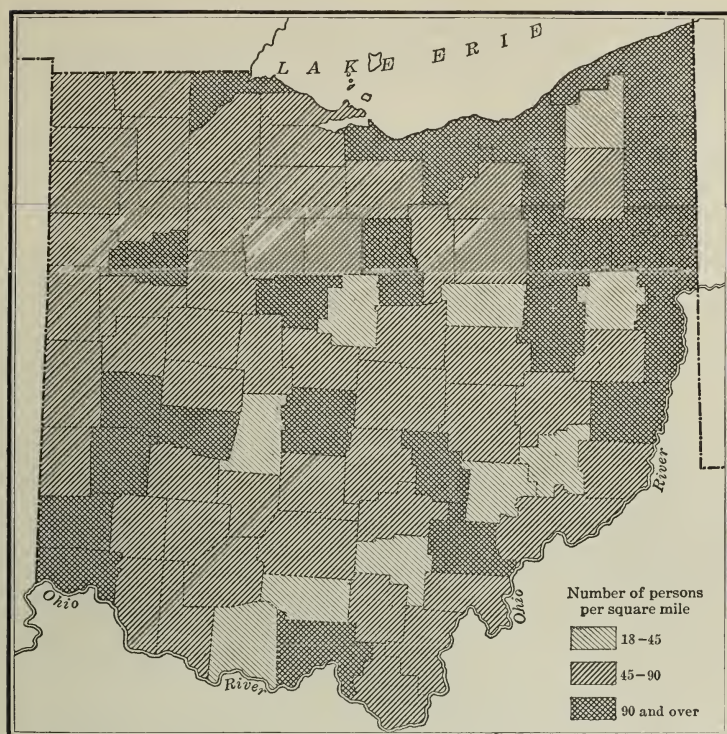


FIG. 150. Density of population of Ohio by counties—1920

POPULATION, 1800-1920		POPULATION PER SQUARE MILE	
1800 . . . . .	45,365	1800 . . . . .	1.1
1810 . . . . .	230,760	1810 . . . . .	5.7
1820 . . . . .	581,434	1820 . . . . .	14.3
1830 . . . . .	937,903	1830 . . . . .	23.6
1840 . . . . .	1,519,467	1840 . . . . .	37.3
1850 . . . . .	1,980,329	1850 . . . . .	48.6
1860 . . . . .	2,339,511	1860 . . . . .	57.4
1870 . . . . .	2,665,260	1870 . . . . .	65.4
1880 . . . . .	3,198,062	1880 . . . . .	78.5
1890 . . . . .	3,672,329	1890 . . . . .	90.1
1900 . . . . .	4,157,545	1900 . . . . .	102.1
1910 . . . . .	4,767,121	1910 . . . . .	117.0
1920 . . . . .	5,759,394	1920 . . . . .	141.4



**Brown.** Brown County was named in honor of General Jacob Brown, who defeated the British at Lundy's Lane in the War of 1812.

Georgetown, the county seat, is famous as the boyhood home of Ulysses S. Grant.

Ripley was at first called Stanton, and was afterwards named Ripley in honor of General Ripley, an officer of the War of 1812. A prominent abolitionist, Reverend John Rankin, lived in Ripley,



FIG. 151. A large tractor plant

The automobile tractors which are made in this Ohio factory are shipped all over the world. (Courtesy of Ford Tractor Plant, Hamilton, Ohio)

and his residence became one of the first stations on the famous Underground Railroad which led to Canada (see Fig. 37).

Tobacco-raising is the chief industry of the county.

**Butler.** Butler County, named after General Butler, an officer of the Revolution, is often called the Garden of Ohio.

The route of St. Clair in his Indian campaign of 1791 passed through this county. In that year, Fort Hamilton was built on the present site of Hamilton on the Great Miami River.

Manufacturing in Hamilton received its first stimulus from the construction of a hydraulic canal which brought water from the Miami River at a point about four miles above the city.



Oxford, a village northwest of Hamilton, is noted for its educational institutions. Miami University, a state institution, is located here; also two famous colleges for women—Oxford College, and The Western College for Women.

**Carroll.** Carroll County was named in honor of Charles Carroll of Carrollton, Maryland, who was the last survivor of the famous group who signed the Declaration of Independence.



FIG. 152. A motor truck made in Ohio

This illustration shows a three-and-one-half ton truck at work in the pineapple fields of Hawaii. (Courtesy of the White Motor Car Company, Cleveland, Ohio)

Carrollton, the county seat, is famous as the home of the Fighting McCooks. The two families of Major Daniel McCook and his brother, Dr. John McCook, gave fifteen sons to the Union armies. All of them became commissioned officers and were distinguished for their valor.

**Champaign.** In early days many Indian councils were held in this county, and Tecumseh, chief of the Shawnees (Fig. 30), was noted for his eloquent speeches at these meetings. Tecumseh's favorite hunting-ground was on Deer Creek.

During the War of 1812, Urbana, the county seat, was the base of operations for the American army. General Hull assembled his army here before starting on his ill-fated expedition to Detroit.

Many early political meetings were held at Urbana, the most noted of which was the great convention of 1840 during General Harrison's campaign. The famous American sculptor, John Q. A. Ward, was born in this city, where he spent his boyhood days.

**Clark.** Clark County was named in honor of General George Rogers Clark, who won the Northwest Territory for the United States in the Revolutionary War.

The first settlement in the county was made in 1796 at Chubbs Station at the forks of Mad River.

The Indian town of Piqua, five miles west of the present site of Springfield, is the birthplace of Tecumseh, the famous Indian chief. This town was later abandoned, and its few white settlers moved to Miami County, where they formed a new settlement to which they gave the name Piqua.

Springfield, the county seat, was the home of Asa S. Bushnell, twice elected governor of Ohio. It is also the home of Wittenberg College, a well-known institution of higher education.

**Clermont.** Clermont County was settled largely by pioneers from Maryland, Virginia, and Kentucky who wished to migrate from slave territory. These men became strong advocates of emancipation and gave Clermont an important place in the final struggle against slavery. The county was probably named from Clermont in France.

The first Methodist Church in Ohio, perhaps in the entire Northwest, was organized by Francis McCormick at Milford (1797).

Point Pleasant, a village twenty-five miles above Cincinnati, is famous as the birthplace of Ulysses S. Grant.

Batavia, the county seat, was noted for its old stone meeting-house built in 1817. Here the "Clermont boys" were welcomed on their return from the Mexican War, and here the first Clermont company in the Civil War was organized.

**Clinton.** Clinton County was named after George Clinton, fourth Vice President of the United States, and the originator of the canal project carried out by his nephew, Governor De Witt Clinton.

Wilmington, the county seat, was settled by emigrants from North Carolina and named for Wilmington in that state.

**Columbiana.** Two unrelated names, Columbus and Anna, were combined to form the word Columbiana.

The first paper mill in Ohio, and the second west of the Alleghenies, was erected in 1805 on Little Beaver Creek.

East Liverpool, the center of the pottery industry of the United States, is located in the heart of a region rich in mineral and chemical deposits.

**Coshocton.** This county derived its name from the Indian village, *Goschachgunk*, which in early days was located here.

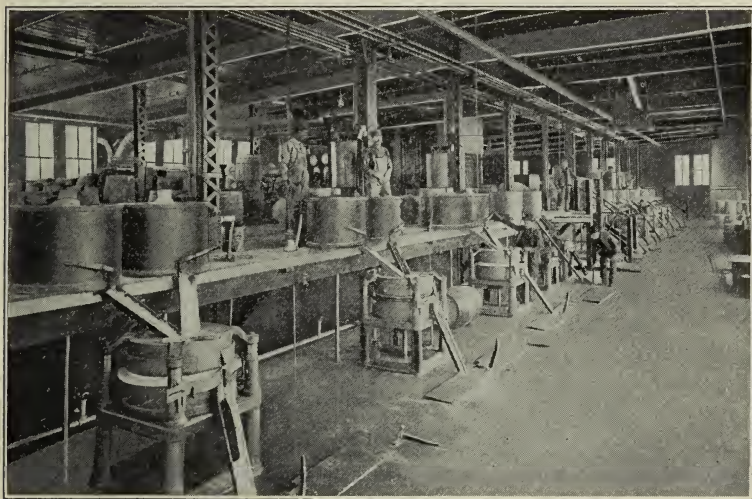


FIG. 153. Interior of a paint factory

This illustration shows a section of the mixing and grinding department for the manufacture of prepared paints. The ingredients are introduced into the measuring and distributing tanks (at top of picture), and are next fed to the mixers (resting on the balcony floor) where they are mixed with great care. (Courtesy of the Sherwin-Williams Company, Cleveland, Ohio)

This region was the early home of the Delaware Indians, against whom Colonel Bouquet led his daring expedition in the year 1764.

**Crawford.** Crawford County was named in honor of Colonel William Crawford.

Bucyrus, the county seat, was named after Cyrus the Great. Colonel Kilbourne, its founder, was a great admirer of this Persian ruler; he placed the first syllable of the word "beautiful" before Cyrus, and named the town Bucyrus.

**Cuyahoga.** This county was named from the river Cuyahoga. *Cuyahoga* is an Indian word meaning "crooked."



As early as 1755 there was a French trading station within the present limits of the county. However, the first permanent settlement was made at Cleveland in 1796, and named in honor of the land company's agent, Moses Cleaveland. Cleveland is today the largest city in Ohio. It possesses one of the finest harbors on Lake Erie and is one of its chief ports, connecting the interior of the state with the Great Lakes region (see Facts and Figures, Tables VII and IX).



FIG. 154. How steel cars are made

The underframe of each car is first constructed, then placed on the trucks and started over the tracks. The different parts are applied at different positions—fifteen in all—until the completed car passes through the last position on the track. This illustration shows a section of the main shop with tractor underframes piled ready for shipment.  
(Courtesy of the Ralston Steel Car Company, Columbus, Ohio)

The district about Berea abounds in stone quarries, noted for sandstone of superior quality and almost inexhaustible supply.

**Darke.** Darke County was named after General William Darke.

In 1793 General Wayne built Fort Greenville on the present site of Greenville, the county seat. Wayne remained here with his army for six months before advancing to the Maumee Rapids, where he defeated the Indians. Two treaties of peace with the Indians were made at Fort Greenville (1795, 1814).

Arcanum is located in a fertile farming section and is the shipping point for much of the tobacco crop of the county.



**Defiance.** Defiance County received its name from Fort Defiance, built in 1794 by General Wayne at the junction of the Maumee and Auglaize rivers.

Defiance, the county seat, was built on the site of the old fort. This site had formerly been a trading point between the French in Canada and the Indian tribes of Ohio. It is claimed that the noted Indian chief Pontiac was born here. In the War of 1812, Fort

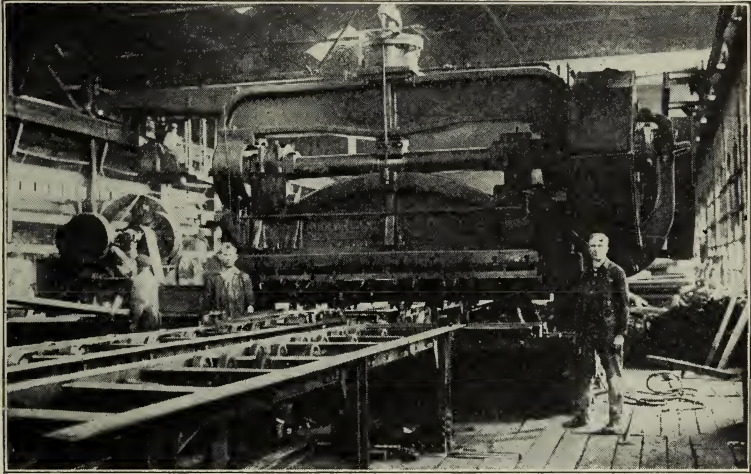


FIG. 155. How steel cars are made

This large machine is used for punching holes in metal. This picture shows a steel plate in position ready to be punched. (Courtesy of the Ralston Steel Car Company, Columbus, Ohio)

Defiance was an important post for the concentration of troops under General Harrison against the British and Indians on the frontier.

**Delaware.** This county was named from the Delaware tribe of Indians. The first settlement was made in 1801 on the east bank of the Olentangy River, five miles below the city of Delaware.

Delaware County is the birthplace of General William S. Rosecrans, a famous commander in the Civil War.

Delaware, the county seat, is famous as the seat of Ohio Wesleyan University. This city was also the birthplace of Rutherford B. Hayes, the nineteenth president of the United States.

**Erie.** Erie County, named after the Erie tribe of Indians, is located in that part of the Western Reserve known as the "Firelands."

The village of Milan is famous as the birthplace of Thomas A. Edison. It was formerly an important wheat-shipping center.

Sandusky, the county seat, was originally called Ogontz, after an Indian chief. The Ohio Soldiers' and Sailors' Home is located here. The Ohio State Fish Hatchery is on the lake front near Sandusky, and this city is one of the most important centers of the fishing industry.

Kelleys Island, lying in Lake Erie, thirteen miles from Sandusky, is one of the townships of Erie County. The island was originally bought by Datus Kelley for its valuable red cedar. Later the growing of grapes became the chief industry.

**Fairfield.** Fairfield County derived its name from the beauty of its fair fields.

Lancaster, the county seat, was founded by Ebenezer Zane, the builder of Zane's Trace. He called the settlement New Lancaster, because many of its settlers were emigrants from Lancaster County, Pennsylvania. Later the word "New" was dropped from the name. Lancaster is noted as the home of Thomas Ewing, who served two terms in the United States Senate. It is also the birthplace of John Sherman, another United States Senator, and of his brother, William T. Sherman, a famous general in the Civil War. The Ohio Boys' Industrial School is located here.

**Fayette.** Fayette County was named in honor of Lafayette of France.

Washington Court House, the county seat, is a leading stock center of the state.

Jeffersonville is a shipping point for thoroughbred Poland-China hogs and Shorthorn cattle.

**Franklin.** Franklin County was named in honor of Benjamin Franklin.

This county was the early home of the Wyandot Indians.

Franklinton, now a part of Columbus, was the first town built in the Scioto Valley north of Chillicothe. This early settlement was the birthplace of General Irvin McDowell, of Civil War fame.

Columbus, the capital of Ohio, is the fourth city of the state in population. It is a great railroad center and is noted for its public institutions, which include: The Asylum for the Insane, The Institution for the Education of the Deaf and Dumb, The Institution for the Education of the Blind, and the Ohio Penitentiary. The Ohio State University, two and one-half miles north of the State House,

is one of the largest and best equipped state universities, with an enrollment of nearly 8000 students.

**Fulton.** Fulton County was named after Robert Fulton, inventor of the steamboat.

Wauseon, the county seat, was named from an Indian chief. It is situated in the center of a very fertile agricultural region.



FIG. 156. Sewing room of a clothes-manufacturing plant

This is one of the largest plants in the world devoted to the manufacture of uniforms, suitcases, and traveling bags. (Courtesy of the M. C. Lilley and Company, Columbus, Ohio)

**Gallia.** This county takes its name from the Latin word *Gallia*, which was the ancient name of the country now called France.

The first settlement in the county, and the third in the state of Ohio, was made at Gallipolis. It was settled in 1790 by a French colony sent out under the auspices of the Scioto Company.

**Geauga.** The name *Geauga* in the Indian language means "racoon," and was originally applied to the Grand River.

The first settlement was made at Burton in 1798 by three families from Connecticut. One mile from Burton is the old home of Peter Hitchcock, the "Father of the Constitution of Ohio."

Chardon, the county seat, is noted for the manufacture of cheese.



The chief industry of the county is the making of maple sugar.

**Greene.** Greene County was named in honor of General Nathanael Greene, a valiant officer of the Revolutionary War.

The Shawnee Indian town, Old Chillicothe, was about three and one half miles north of the present site of Xenia. Here Daniel Boone was held a prisoner in 1778.

Xenia, the county seat, was laid out in 1803 by Joseph C. Vance. The Ohio Soldiers and Sailors' Orphans' Home was established here

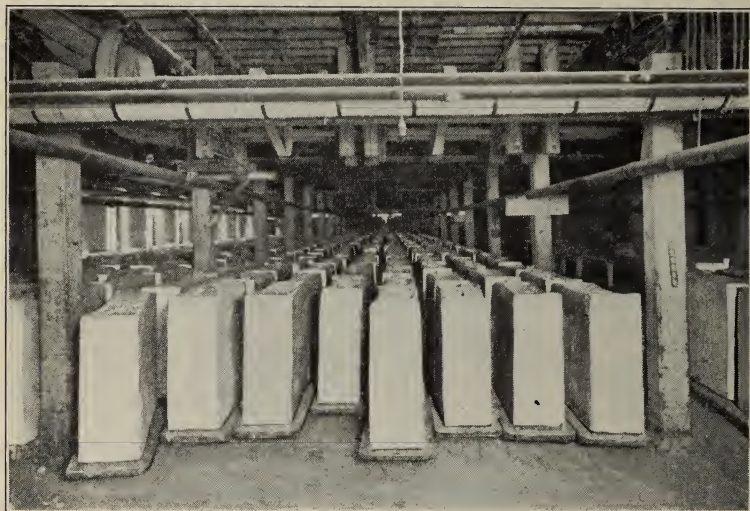


FIG. 157. Large blocks of soap stored in frames. (Courtesy of the Proctor and Gamble Company, Ivorydale, Ohio)

in 1869. It is noted for efficient management and for the homelike care given to the children. Wilberforce University is located near Xenia. It is famous as an institution of higher education for the colored race.

Yellow Springs, noted for its medicinal springs, is the seat of Antioch College. Horace Mann was its president from 1852 to 1859.

Greene County is also noted as the birthplace of Whitelaw Reid and the early home of William Dean Howells.

**Guernsey.** Guernsey County was named by its first settlers in honor of the Guernsey Isles, from which they had emigrated.

Perry's Den, a secluded spot near Cumberland, was once the hiding place of Walter Perry and his gang of horse thieves.



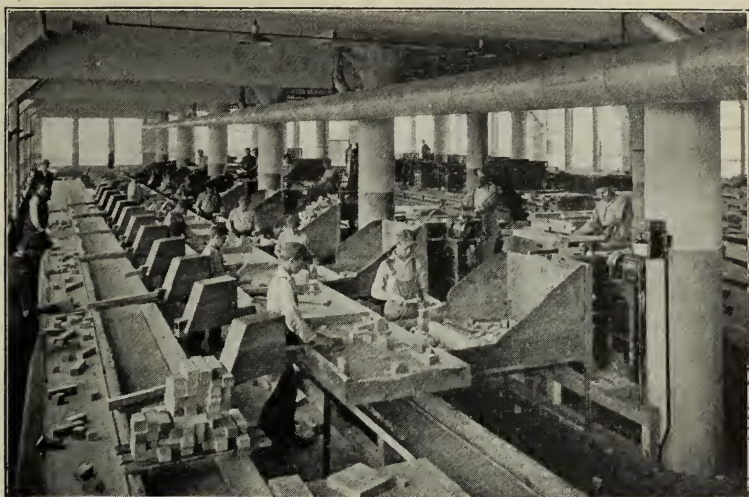


FIG. 158. Making matches

The sawing and sorting of blocks of wood is one of the first stages in making matches



FIG. 159. Making matches

These large kettles contain the composition which is used for the head of the match.  
(Illustrations by courtesy of the Diamond Match Company, Barberton, Ohio)

Pennyroyaldom is the name of a district in the eastern part of the county. It is so named because of the industry of raising and distilling oil of pennyroyal.

The man who wields the second oar in the well-known painting of "Perry's Victory" was "Fighting Bill" Reed of Guernsey County (see Fig. 29).

**Hamilton.** Hamilton, the second county established in the Northwest Territory, was named in honor of Alexander Hamilton, the first Secretary of the Treasury.

Cincinnati, the second settlement in the Northwest Territory, was originally called Losantiville, but was renamed Cincinnati by Governor St. Clair. Because of its location, Cincinnati became the center of abolition. Here Birney was mobbed, and here Wendell Phillips was attacked. In this city the story of "Uncle Tom's Cabin" was suggested to Harriet Beecher Stowe. Cincinnati was the home of Levi Coffin, called the "President of the Underground Railroad." This city is also noted as the birthplace of ex-President William H. Taft, and it was here that Thomas Buchanan Read wrote many of his best poems. Cincinnati has become the second city of the state, and is often referred to as the commercial gateway between the North and the South.

**Hancock.** Hancock County was named after John Hancock, the first signer of the Declaration of Independence.

Findlay, the county seat, derived its name from Fort Findlay, an old fort built during the War of 1812 upon the present site of the city. Findlay is the center of a vast oil and gas region.

**Hardin.** Hardin County was named in honor of Colonel John Hardin, an officer of the Revolutionary War.

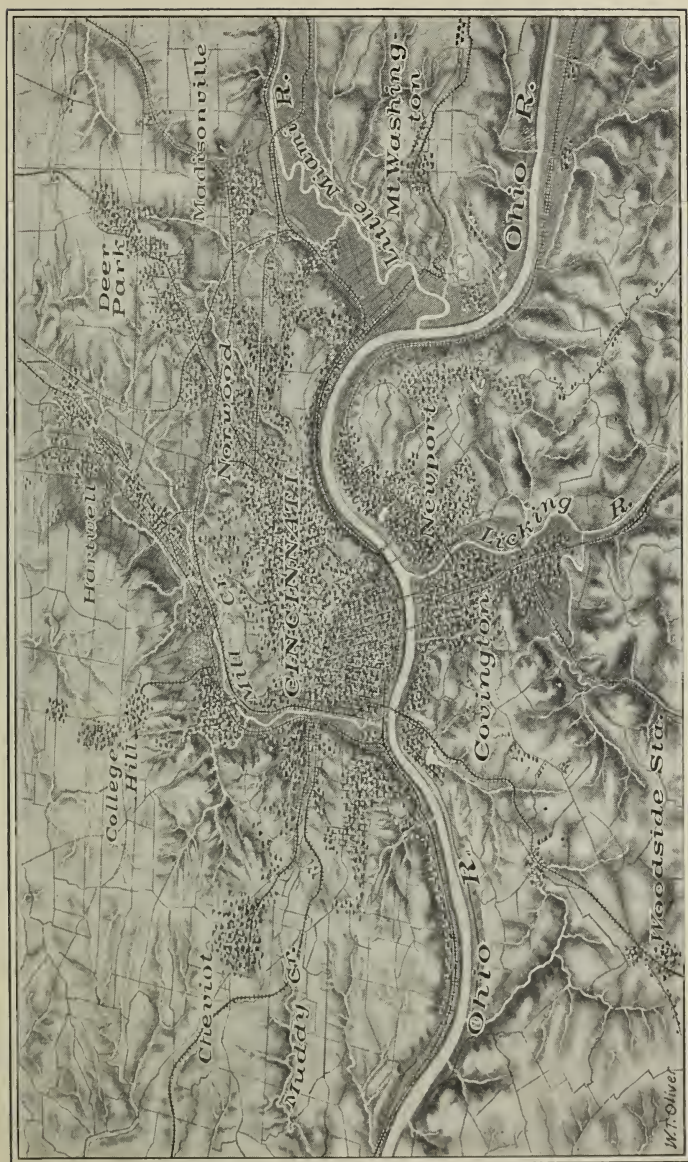
Fort McArthur was built on the Scioto River during the War of 1812.

Kenton, the county seat, was named in honor of Simon Kenton. It is the center of a fertile agricultural region.

Ada, fourteen miles from Kenton, is the seat of Ohio Northern University, an institution of higher education which numbers some of Ohio's leading men among its graduates.

**Harrison.** Harrison County was named in honor of William Henry Harrison.

Cadiz is noted as the home of Edwin M. Stanton, Lincoln's Secretary of War. Bishop Simpson, said by Abraham Lincoln to be the most eloquent orator he had ever heard, was also born here.



© Ginn and Company

Fig. 160. Airplane view showing the situation of Cincinnati on the Ohio River



New Rumley is famous as the birthplace of General George A. Custer, the gallant cavalry leader who lost his life in the fight at the Little Big Horn.

**Henry.** Henry County was named for Patrick Henry, the eloquent Virginia orator of the Revolutionary period.

In early days, Napoleon, the county seat, was one of the haunts of Simon Girty, the renegade Indian leader.

Henry County is today one of the wealthiest sections of the Old Black Swamp.

**Highland.** Highland County was so named because of the highlands between the Scioto and Little Miami rivers. It was settled in 1801 by emigrants from Virginia and North Carolina.

Hillsboro, the county seat, was the birthplace of the Women's Temperance Crusade in 1873.

Allen Trimble, twice elected governor of the state, and Joseph B. Foraker, governor of Ohio and United States Senator, were both residents of Highland County.

Fort Hill, one of the most interesting of the old forts erected in Ohio, is situated in Brush Creek township, seventeen miles from Hillsboro.

**Hocking.** The name "Hocking" is contracted from the Indian name of the Hocking river, *Hockhocking*, which means "a bottle." It is said that from a bird's-eye view the river has the exact shape of a bottle.

This county is located in the famous Hocking Valley coal fields.

Logan, the county seat, is located on the southern and eastern borders of the Hocking coal and iron region. It also adjoins a rich agricultural region on the west and north.

**Holmes.** This county was named in honor of Major Holmes, a gallant young officer of the War of 1812, who was killed in Colonel Croghan's unsuccessful attack upon Fort Mackinac.

The first cabin in the county was built in 1809 on Salt Creek in Prairie township.

**Huron.** *Huron* was the name given by the French to the Wyandot Indians. This county originally included all of the region known as the "Firelands."

Norwalk, the county seat, was named by settlers who came from Norwalk, Connecticut. It is surrounded by rich farming country, and is frequently called the Maple City, because of its beautiful maple trees. The Norwalk Academy in early days was an educa-



tional institution of high standing. Rutherford B. Hayes, George Foster, and General James B. McPherson were among its students.

Bellevue and Monroeville are two thriving towns of Huron County.

**Jackson.** Jackson County was named in honor of President Andrew Jackson.

The famous old Scioto Salt Works, located on Salt Creek, were indicated on maps as early as 1755, but they are now abandoned.

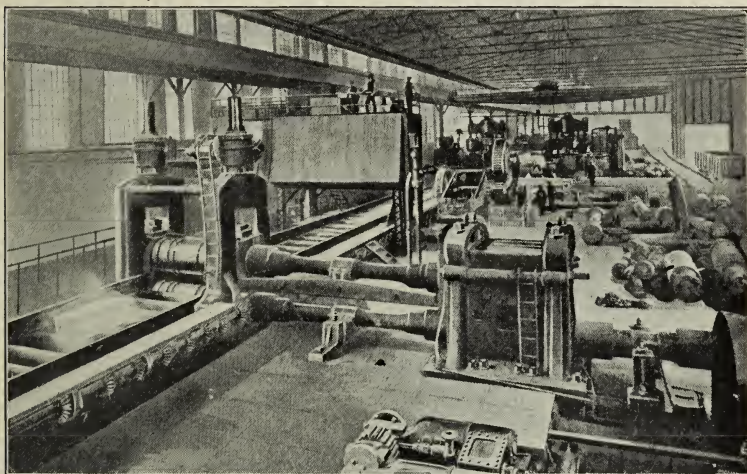


FIG. 161. Interior of a rolling mill

This rolling mill produces heavy steel for railroad and general construction. Note the white-hot steel ingot (at left of picture) passing to the heavy rollers. The rollers squeeze the ingot into bars or plates. (Courtesy of La Belle Mill, Steubenville, Ohio)

Jackson, the county seat, Wellston, and Coalton owe their importance to the immense beds of coal which are found in this region.

**Jefferson.** Jefferson County was the fifth county established in Ohio. It was named in honor of Thomas Jefferson, third President of the United States.

Steubenville, the birthplace of Edwin M. Stanton, derives its name from Fort Steuben, erected on this site in 1789. This fort was named after Baron von Steuben, the drill-master of Washington's army in the American Revolution.

**Knox.** Knox County was named for General Henry Knox, an officer of the Revolution, who became Secretary of War under President Washington.

The early settlers of the county came from the Middle States. At an early date, a large colony of Friends or Quakers located in the northwestern part of the county.

Gambier is widely known as the seat of Kenyon College. This institution was founded with funds obtained by Bishop Chase of England, and was named in honor of Lord Kenyon.

Mt. Vernon, the county seat, was laid out in 1805, and named from the home of George Washington at Mount Vernon, Virginia.

**Lake.** Lake County was so named because it borders on Lake Erie.

The Mormon Temple built at Kirtland in 1833 by Joseph Smith and his followers still stands today, and is used by the Latter-Day Saints of this community.

Painesville, the county seat, was first called Champion after its founder, Henry Champion. The name was afterwards changed to Painesville in honor of General Edward Paine, an officer of the Revolutionary War. This city is the seat of the Lake Erie College for Women. It was the boyhood home of the artists, William H. Beard and James H. Beard, and also the birthplace of Samuel Huntington, one of Ohio's early governors.

Mentor, the first settlement in the county, was the home of James A. Garfield (Fig. 162).

**Lawrence.** Lawrence County was named in honor of Captain James Lawrence, a gallant naval officer of the War of 1812.

Ironton, the county seat, is situated on the Ohio River, and is the center of the Hanging Rock iron region. Large quantities of fire and potter's clay afford an abundance of material for the extensive pottery industry of this city.

Hanging Rock is on the Ohio River four miles below Ironton. It was named from a projecting cliff of sandstone about four hundred feet high, called Hanging Rock.

**Licking.** This county was named from its principal river, the Licking, which the Indians called the Pataskala.

Newark, the county seat of Licking County, has the honor of having supplied the youngest recruit to the Union Army. He was Johnnie Clem, sometimes called the "Drummer Boy of Shiloh and Chickamauga." Near Newark are located the ancient works known as "Old Fort" and "Eagle Mound." The Flint Ridge of this county was the principle source of supply for Indian arrow heads and other flint implements.

The village of Granville is noted as the seat of Denison University. The opening of the Ohio Canal was celebrated at Licking Summit, on the Fourth of July, 1825.

**Logan.** Logan County was named in honor of General Benjamin Logan. The territory comprising the county was the home of the Shawnee Indians, whose villages on Mad River were called the "Macochee towns." It was against these towns that General Logan led an expedition in 1786.

Bellefontaine, the county seat, was laid out in 1820 and so named because of the fine springs in the vicinity.

Lewiston Reservoir in the northwestern part of the county is twelve square miles in area, and supplies the Miami Canal.

**Lorain.** This county was named after the French province of Lorraine.

The first permanent settlement was on the site of the Moravian Indian massacre of 1782.

Elyria, the county seat, was named after Herman Ely of Massachusetts. "Ria" was added to the name of "Ely."

Oberlin, the seat of Oberlin College, was for many years an important station on the Underground Railroad.

The city of Lorain on Lake Erie is noted for its shipbuilding yards.

**Lucas.** Lucas County, named in honor of Robert Lucas, twice governor of Ohio, has been the scene of many historical events. One of the most important was General Anthony Wayne's victory over the Indians at the battle of Fallen Timbers in 1794.



FIG. 162. Tomb of James A. Garfield, Cleveland, Ohio

Garfield's life is the story of America's opportunities. Born on a farm at Orange, Cuyahoga County, his early life was a hard struggle against poverty. He worked on a canal-boat, and afterwards as a carpenter; graduated from Williams College; served with distinction in the Civil War; and in 1880 was elected President of the United States. His promising career was cut short by the bullet of an assassin just four months after his inauguration

Toledo, the third city of Ohio in population, was built on the site of Fort Industry. This fort, which was the center of military operations in the "Ohio-Michigan War," was built in 1800 on the present site of Summit Street. This city is noted for its splendid harbor, one of the finest on the Great Lakes. It is also noted as the home of General James B. Steedman, a famous Civil War leader, and of Morrison R. Waite, Chief Justice of the Supreme Court of the United States.

The older village of Maumee was once the county seat.

**Madison.** Madison County, named in honor of James Madison, fourth President of the United States, was first settled in 1796.

London, the county seat, has won fame throughout the Central and Western states because of its live-stock sales. These sales have occurred monthly since 1856.

Madison County is the birthplace of Jonathan Alder, who was captured when a boy by the Indians and lived among them for twenty-four years.

**Mahoning.** Mahoning County derived its name from the river. *Mahoning* is an Indian word meaning "at the lick."

Youngstown, the county seat, was named after John Young of New Hampshire, who platted the town in 1797. David Tod, one of Ohio's Civil War governors, was born here. This city is located in a rich mineral region and is noted for its coal and iron industries.

**Marion.** Marion County was named in honor of General Francis Marion of South Carolina, a noted Revolutionary officer.

Marion, the county seat, is today famous as the home of our President, Warren G. Harding. The city was laid out in 1821, and has become an important railroad and manufacturing center.

**Medina.** Medina, the county seat of this county, was called Mecca in early days in honor of the Arabian city, Mecca, the birthplace of Mahomet. The city is located in the center of a fertile farming region, the principal products being grain, butter, and cheese.

Medina County was the scene of the "Great Hinckley Hunt" on December 24, 1818, when 400 men engaged in ridding the county of wolves, bears, and deer.

**Meigs.** Meigs County was named in honor of Governor Return Jonathan Meigs. The first settlers came from Washington County.

Pomeroy, the county seat, is located on the Ohio River. It is an important center for a large mining district.

The county is noted for its coal, salt, and iron industries.



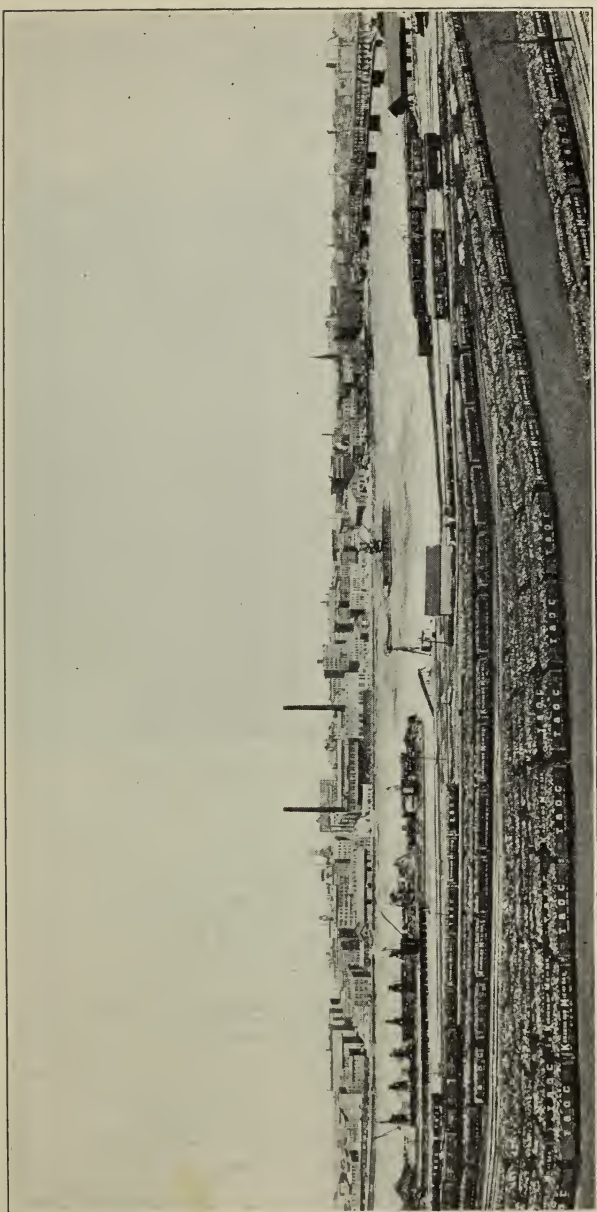


FIG. 163. Panorama of Toledo, Ohio, showing the East Side coal docks

**Mercer.** Mercer County was named for General Hugh Mercer, who was killed while fighting at the battle of Princeton in 1777.

St. Clair's defeat took place in the southwestern corner of the county, near the Indiana state line. The town of Fort Recovery

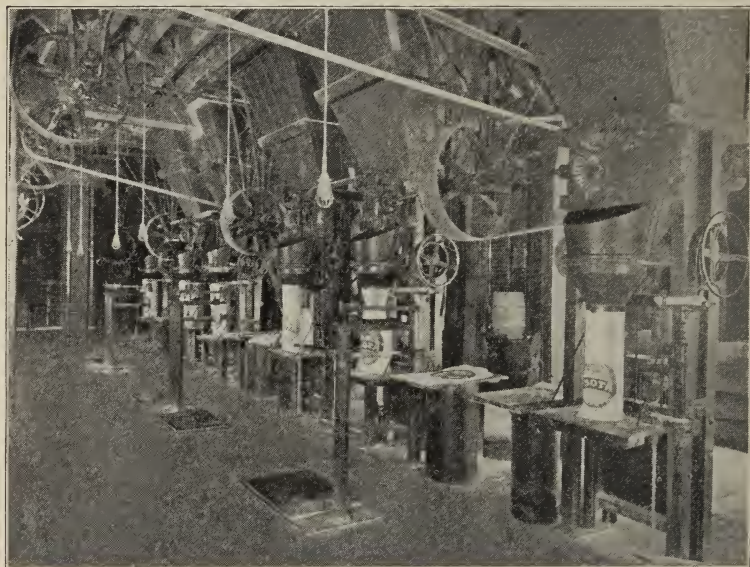


FIG. 164. Where flour is packed and weighed

At the end of the milling process, thirty or more streams of flour are mixed together and discharged into hoppers above the packing machines. Each packing machine can be adjusted to fit the size of the sack being filled. As the flour pours from the hopper into the sack, a revolving spiral blade or auger forces it down into the sack, and simultaneously the platform on which the sack stands is automatically lowered. When the sack is filled it is removed and weighed, (Courtesy of the National Milling Company, Toledo, Ohio)

now marks the site where his army was destroyed. It is located about fifteen miles from Celina, in a gas region.

Near Celina is the Mercer County reservoir, which feeds sixty miles of canal and is one of the largest artificial lakes in the world.

**Miami.** The word *Miami* in the Indian language means "mother."

The county abounds in excellent limestone and has a vast amount of water-power. In agricultural resources it is one of the richest counties in the state.

Troy, the county seat, is the center of a fertile agricultural region.

Piqua, located on the old Miami and Erie Canal about eight miles north of Troy, has extensive manufactures (Fig. 165).

**Monroe.** Monroe County was named in honor of James Monroe of Virginia, who was the fifth President of the United States.

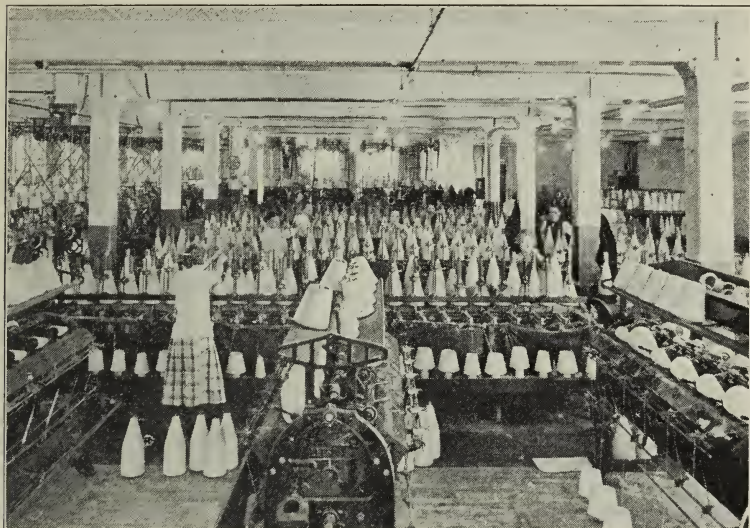


FIG. 165. Knitting room in a hosiery company

In the foreground of this picture are the large bobbins on which the thread is wound. In the background are the latch needle machines on which the hosiery is knit. (Courtesy of the Piqua Hosiery Company, Piqua, Ohio)

The first settlement was made near the mouth of Sunfish Creek in 1799. Many of the original settlers came from western Pennsylvania. One township was settled by Swiss. Woodsfield, the county seat, was founded in 1815 by Archibald Woods.

**Montgomery.** Montgomery County was named for General Richard Montgomery, an officer of the Revolutionary War, killed in the attack on Quebec.

Among its early settlers was Colonel Robert Patterson, who was the original proprietor of Lexington, Kentucky.

Dayton, the sixth city of Ohio, was the meeting place of a great Harrison convention in 1840. The National Military Home for disabled volunteer soldiers is located here. The city is also noted as the home of the National Cash Register industry (Fig. 166).



**Morgan.** Morgan County was named for General Daniel Morgan, an officer of the Revolutionary War. The first settlement was made at Big Bottom on the Muskingum River by thirty-six young men from Marietta.

One of the most remarkable natural curiosities in southern Ohio is located three miles from McConnelsville, the county seat. This is

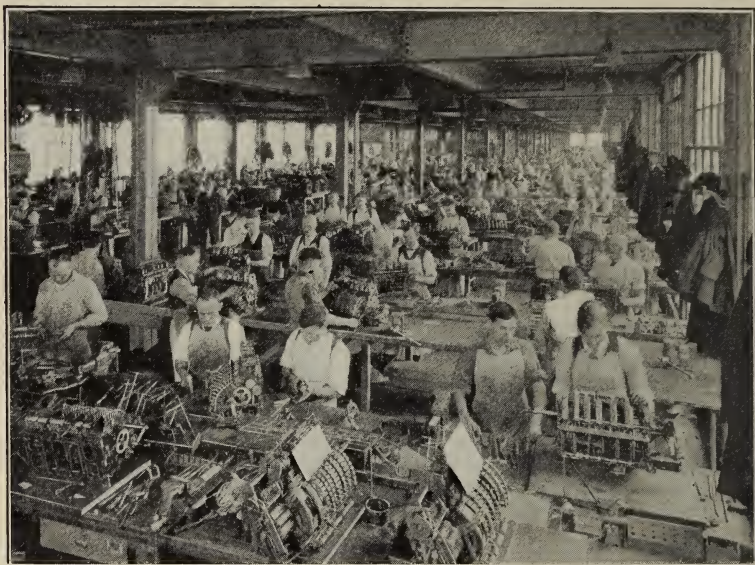


FIG. 166. Assembling cash registers

"One a minute" is the average number of registers assembled in this department. (Courtesy of the National Cash Register Company, Dayton, Ohio)

the Devil's Tea Table, an immense table of sandstone which weighs 3000 tons, and which is supported by a slender slab of slatestone.

The county is noted as the birthplace of Jeremiah Rusk, governor of Wisconsin for several terms and Secretary of Agriculture in President Harrison's Cabinet.

**Morrow.** Morrow County was named for Jeremiah Morrow, who was governor of Ohio from 1822 to 1826.

Mt. Gilead, the county seat, was laid out in 1824 and named Whetstone. In 1832 the legislature changed its name to Mt. Gilead.

**Muskingum.** The name *Muskingum* is an Indian word meaning "town on the river side."



Zanesville was laid out in 1799 by Ebenezer Zane, the builder of Zane's Trace. The city is noted for the famous "Y" bridge spanning the Muskingum River. This bridge divides in the middle into two parts, which lead to different localities.

**Noble.** Noble County was named in honor of James Noble, one of its first settlers.

The first oil well in Ohio was drilled in 1814 near Caldwell, the county seat.

John Gray, the last surviving soldier of the Revolutionary War, was a resident of this county.

James M. Dalzell, originator of the Soldiers' Reunion, had his home at Caldwell. About 25,000 soldiers were present at the first reunion held at Caldwell in 1874.

**Ottawa.** *Ottawa* is an Indian word meaning "trader."

Port Clinton, the county seat, is situated on a beautiful bay and has a splendid harbor.

The group of islands off the shore of Ottawa County is known as the Wine Islands because of the great quantities of grapes grown there.

Gibraltar is the small island upon which Jay Cooke erected a monument in memory of Commodore Oliver H. Perry. Perry's great victory took place on Lake Erie a few miles from the shore of Ottawa County.

Put in Bay, a famous summer resort, is an island of Lake Erie, twelve miles north of Port Clinton.

**Paulding.** This county was named in honor of John Paulding, one of the three men who captured Major André in the Revolutionary War.

The original county seat was Charloe, but it was afterwards moved to Paulding.

Paulding County has had a marked development, for in 1840 it had the smallest population of any county in Ohio.

The surface of the county is so level that it is said one can stand near the depot in Defiance and see the headlight of a locomotive at Antwerp, twenty-three miles away.

**Perry.** Perry County was named in honor of Oliver H. Perry.

The first cabin in the vicinity of Somerset was built in 1807. This town was at first called Middletown, because it lay halfway between Zanesville and Lancaster. Somerset was the boyhood home of General Philip Henry Sheridan.

New Lexington, the county seat, was laid out in 1817.

Perry County is one of the coal-producing counties in the state.

**Pickaway.** The name "Pickaway" is a misspelling of *Piqua*, the name of a Shawnee Indian tribe.

Circleville, the county seat, is on the site of two ancient forts. One of these, built in the form of a circle, suggested the name of

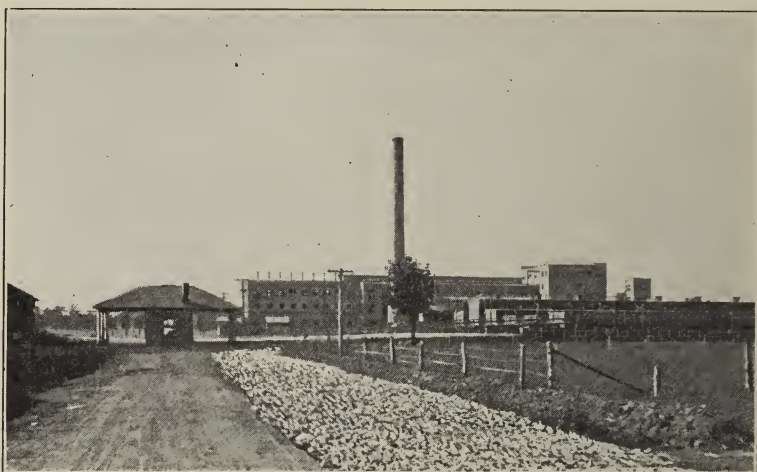


FIG. 167. Sugar factory

The capacity of this large factory is 1000 tons of beets daily. When the beets reach the factory, they are washed, cut into small strips, and placed in large pans filled with hot water where the sugar is soaked out of the beets. The juice is first treated with lime, then with carbonic acid gas which leaves a clear liquid. This liquid is filtered and boiled down until the sugar crystals are formed. The liquid is then put through a centrifugal machine which separates the sugar from the sirup. (Courtesy of the German-American Sugar Factory, Paulding, Ohio)

the city. Circleville is noted as the home of Caleb Atwater, Ohio's first historian. It lies in the center of a fertile agricultural region.

**Pike.** Pike County was named for Zebulon Pike, the discoverer of Pikes Peak.

The first permanent settlers in the county were from Pennsylvania and Virginia. Waverly, the county seat, was laid out in 1829.

**Portage.** The name of the county was derived from the old Indian portage path between the Cuyahoga and Tuscarawas rivers.

The first cabin in Ravenna, the county seat, was built by Benjamin Tappan in 1799.

The noted Indian fighter, Samuel Brady, made his famous leap across the Cuyahoga River about two hundred yards above the bridge at Kent. The chasm across which he leaped is today known as Brady's Leap.

Kent is the seat of the Kent State Normal College.

**Preble.** Preble County was named in honor of Edward Preble, a naval commander who served during the Revolutionary War.



FIG. 168. The Logan elm, near Circleville, Ohio

Beneath this famous elm a treaty was concluded in 1774 between the Virginia troops under Lord Dunmore and the Shawnee Indians who occupied the region now known as Pickaway County. At this conference Logan, the Mingo chief, delivered a speech regarded as one of the finest specimens of Indian eloquence

Eaton, the county seat, was laid out in 1806 and named for General William Eaton. The city is noted for mineral springs of medicinal value.

Fort St. Clair was erected one mile west of Eaton in 1791.

**Putnam.** Putnam County was named in honor of General Israel Putnam. One of the reservations granted to the Ottawa Indians by the Treaty of Maumee was located in this county.

During the War of 1812, General Harrison erected Fort Jennings on the Auglaize River, on the site of the present village of Jennings.

Ottawa, the county seat, was originally called Tawa Town.



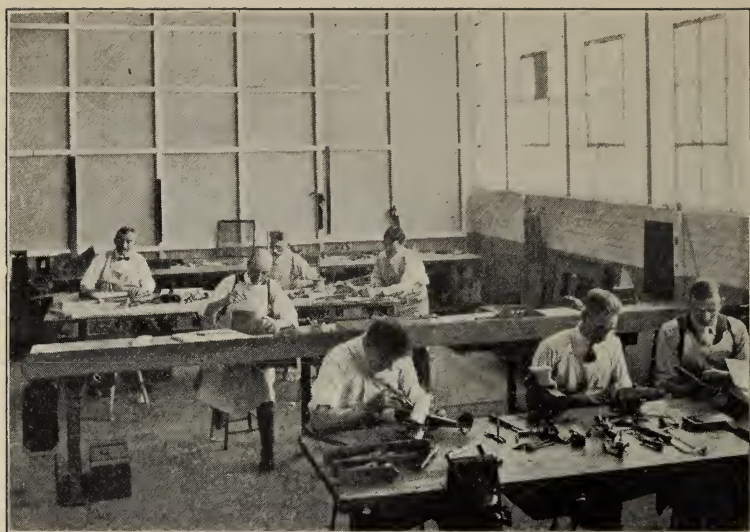


FIG. 169. How airplanes are made

This is the model room of a large airplane factory. Before construction on any airplane is begun, an exact-scale model is made of the type of airplane to be built



FIG. 170. Making the wings

The highest grade of spruce and the best grade of linen are used in making airplane wings, since it is necessary that this part of the machine should be light and durable.  
(Courtesy of the Dayton-Wright Company, Dayton, Ohio)





FIG. 171. The assembly department

The different parts of the airplane which have been made in the other departments are assembled in this room to make the finished product



FIG. 172. The *De Havilland-4*

This was the first battle plane manufactured in the United States, and of this model, 2703 were completed and shipped to France. (Courtesy of the Dayton-Wright Company, Dayton, Ohio)

The first road in the county was built from Fort Recovery to Defiance by General Anthony Wayne. This was in the year 1794.

**Richland.** Richland County was so named because of its fertile soil.

The county is famous as the home of "Johnny Appleseed" (John Chapman), who did much to develop the fruit orchards of Ohio.

Mansfield, the county seat, was laid out in 1808. Here John Sherman practiced law for eleven years before his election to Congress. Sherman's thirty-two years of service in the United States Senate exceeded that of any other Senator. He also served in the House of Representatives for six years, and in the President's Cabinet for five years.

**Ross.** Ross County was named in honor of James Ross.

General Nathaniel Massie was the founder of Chillicothe, the county seat. This city was at one time the capital of the Northwest Territory and was also the first state capital.

Chillicothe was the home of Edward Tiffin, the first governor of Ohio, and was also the early boyhood home of Allen G. Thurman.

From early days the county has been noted for fine cattle. The first English cattle brought to Ohio were driven from Kentucky to Ross County; this county also sent the first herd of cattle to an eastern market.

**Sandusky.** *Sandusky* is an Indian word meaning "at the cold water."

The first settlers in the county were from New England.

The present site of Fremont was an Indian reservation, two miles square, granted to the Indians by the Treaty of Greenville. The town was once called Lower Sandusky, but later was named Fremont in honor of the great pathfinder, John C. Frémont. Fort Stephenson, defended by Colonel Croghan against the British and Indians in 1813, was built within the limits of the present city of Fremont. Spiegel Grove at Fremont, the home of President Rutherford B. Hayes, has been given by his son to the state of Ohio for a memorial park.

The village of Clyde is noted as the birthplace of General James B. McPherson. The cartoonist, James A. Wales, was also born here.

**Scioto.** This county was named from the Scioto River.

As early as 1740 there was a French trading post about a mile and a half from the present site of Portsmouth, the county seat.

The city was laid out in 1803 by Henry Massie, one of the early settlers, and named for Portsmouth, Virginia, his former home.

The county is noted for an excellent quality of building stone.

**Seneca.** Seneca County derives its name from the Seneca Indians, who had a reservation here.

Fort Seneca, a military post built during the War of 1812, was about nine miles north of Tiffin.

Tiffin, the county seat, was laid out in 1821 by Josiah Hedges and named in honor of Edward Tiffin, the first governor of Ohio. The city occupies both sides of the Sandusky River, including the site of old Fort Ball. Heidelberg, a noted institution of higher education, is located at Tiffin.

Fostoria, twelve miles northwest of Tiffin, is located in three counties—Seneca, Hancock, and Wood. This city is a distributing center for grain and live stock. One of the largest flour mills in the state is located here.

Seneca County lies in one of the richest agricultural districts of Ohio.

**Shelby.** Shelby County was named in honor of General Isaac Shelby, an officer of the Revolutionary War and the first governor of Kentucky.

Sidney, the county seat, was laid out in 1819. The site is a beautiful one, on a high elevation on the west bank of the Miami River.

The Loramie Reservoir contains 1800 acres.

**Stark.** Stark County was named in honor of General John Stark, a valiant officer of the Revolutionary War.

The first Moravian missionary came to Ohio in 1761 and settled in Bethlehem township of this county.

Canton, the county seat, was the home of President William McKinley. A beautiful memorial has been erected here in his honor (Fig. 173).

Mount Union College, located at Mount Union, is an important institution of higher education.

Massillon was laid out in 1826 and named for a celebrated French divine, John Baptiste Massillon. The city is one of the important wheat markets of the state.

**Summit.** Summit County derived its name from the fact that it was the highest point on the Ohio and Erie Canal. It was originally called the Portage Summit.

The first settlement was made at Hudson in 1800 by David Hudson. The village was the early home of John Brown, of Harpers Ferry fame. Western Reserve University was formerly located here, but was moved to Cleveland in 1882.

Akron, the county seat, received its name from a Greek word meaning "an elevation." The city has extensive rubber industries, and is today Ohio's fifth city in population.

Summit County is noted for its many and beautiful lakes, which were formed during the glacial period (see pages 96-100).



FIG. 173. Memorial to William McKinley, Canton, Ohio

This monument was unveiled September 30, 1907, in the presence of President Roosevelt and members of his Cabinet. A gallant soldier of the Civil War, William McKinley afterwards served six terms in the House of Representatives, two terms as governor of Ohio, and was twice elected President of the United States. His second term had just begun when he was shot by an anarchist.

**Trumbull.** Trumbull County was named in honor of Governor Trumbull of Connecticut. The county was formed in 1800, and included within its original limits the whole of Connecticut's Western Reserve.

Niles, in the heart of the great mining industry of Ohio, is noted as the birthplace of President William McKinley.

Warren, the county seat, was laid out in 1801. Kenyon Cox, the noted painter and author, was born here.

**Tuscarawas.** Tuscarawas County derived its name from that of an Indian tribe. The word means "open mouth."

The Moravian Indians had a mission in the county long before Ohio was settled by white men.

The first white child born in Ohio was Mary Heckewelder, daughter of a noted Moravian missionary. She was born at Salem in 1781.



Gnadenhutten, eleven miles south of New Philadelphia, is the site of the massacre of the Moravian Indians, which occurred in 1782.

Near Bolivar are the remains of Fort Laurens, erected during the Revolutionary War.

In 1803 this district became the home of numerous emigrants from West Virginia and Pennsylvania. New Philadelphia, the county seat, was laid out in 1804.

**Union.** Union County received its name from the fact that it was formed from portions of several adjacent counties.

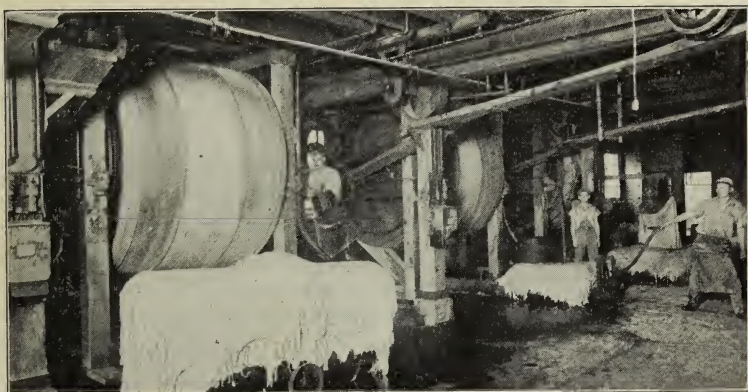


FIG. 174. Tanning leather

About thirty processes are involved in the manufacture of leather. This shows the tanning operation. From the pickle paddles the skins are brought in to the tan wheels, where they are tanned in the chrome liquor solution for several hours. They are then pressed to drive out the excessive moisture, after which they are split, shaved, and colored. (Courtesy of the Ohio Leather Company, Girard, Ohio)

The first settlement in the county was made in 1798 by settlers who came from the states of Pennsylvania and Virginia.

Marysville, the county seat, is often called the Shaded City because of its beautiful maple trees.

Richwood, fifteen miles northeast of Marysville, is the center of a rich agricultural region.

**Van Wert.** This county was named in honor of Isaac Van Wert, one of the three captors of Major André in the Revolutionary War.

One of the early settlers of the county was Captain James Riley, who founded Wellshire in 1822.

Here the erection of a Y. W. C. A. building, a County Hospital, and a Nurses' Home emphasizes the idea of the county unit.

Delphos has the distinction of being situated in two counties. The Miami and Erie Canal divides the town into two equal portions.

Van Wert, the county seat, was incorporated in 1848. It is a center for important industries, including railway and machine shops, flour mills, and manufactures of pianos, gloves, and overalls.

**Vinton.** Vinton County was named in honor of Samuel Finley Vinton, a distinguished Ohio Congressman.

The first settlers reached the county in 1805.

Mc Arthur, laid out in 1815 under the name of Mc Arthurtown, is sometimes called the Mineral City.

**Warren.** This county was named in honor of General Joseph Warren, who was killed at the battle of Bunker Hill.

Deerfield, near South Lebanon, is probably the oldest town in the county.

Lebanon, the county seat, is the location of the National Normal University, which has given many of its graduates to public life. This city was also the home of Thomas Corwin, a distinguished Ohio statesman and governor (Fig. 34).

Warren County was the home of John McLean, Postmaster-General during President Monroe's administration and later Associate Justice of the United States Supreme Court. Jeremiah Morrow, one of Ohio's early governors, also lived here.

**Washington.** Washington County, named in honor of George Washington, was the first county formed within the limits of Ohio. The first settlement was made at Marietta in 1788 by General Rufus Putnam (Fig. 8).

Marietta, the oldest town in Ohio, was the home of Manasseh Cutler, also of Return Jonathan Meigs, Jr., governor of Ohio from 1811 to 1814.

Washington County is the birthplace of General Don Carlos Buell.

It is said that this county contains more graves of officers of the Revolutionary army than any similar extent of ground in the entire United States.

**Wayne.** Wayne County, established in 1796, was named in honor of General Anthony Wayne, hero of Stony Point and victor at the battle of Fallen Timbers (1794).

Wooster, the county seat, was named for General David Wooster, an officer of the Revolutionary War. When the city was settled in 1808, there were no white inhabitants between it and Lake Erie.

The University of Wooster, which first opened its doors in 1870, is one of Ohio's well-known institutions of higher education.

**Williams.** Williams County was named for David Williams, one of the three captors of Major André.

Bryan, the county seat, was named in honor of John A. Bryan, then Auditor of State, who donated the land for a county seat. The first artesian well in northwestern Ohio was sunk at Bryan in 1842.

Montpelier is the second town of importance in this county.

**Wood.** Wood County was named in honor of Captain Wood, General Harrison's chief engineer at Fort Meigs during the War of 1812.

Major Amos Spafford, appointed Collector of the Port of Miami in 1810, was probably the first permanent resident and landowner in Wood County.

The first oil field to be developed in the county was at North Baltimore in 1886. At present the oil production in the county has decreased, but it is still an important industry.

Bowling Green, the county seat, is the center of the North Lima oil field. The Bowling Green State Normal College is located here.

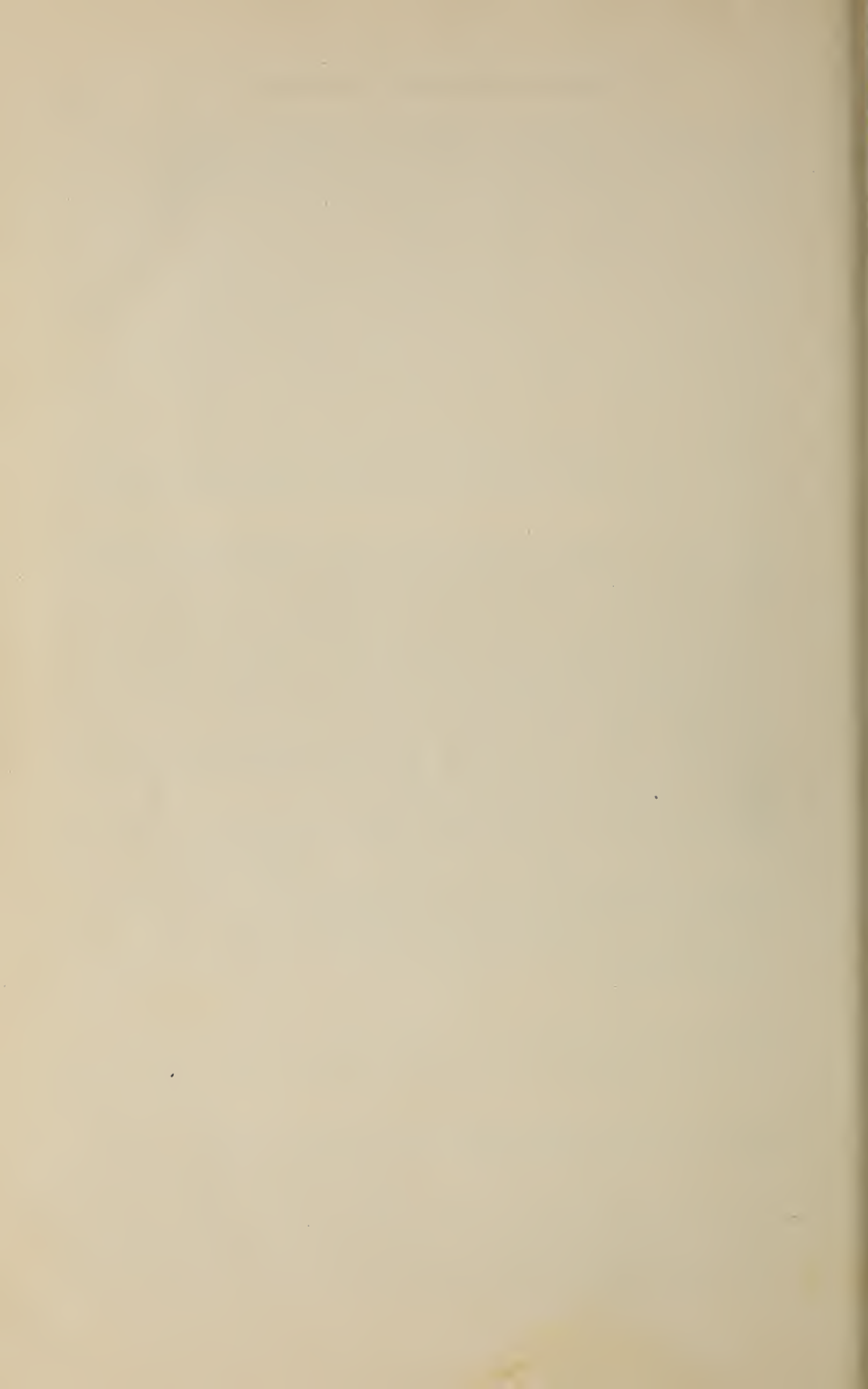
The original county seat was at Perrysburg, which was laid out in 1816 just below Fort Meigs.

**Wyandot.** This county was named for the Wyandot tribe of Indians. A monument marks the spot where Colonel William Crawford was burned at the stake in 1782.

The county did not settle rapidly until the Indians were removed in 1843, when their lands were opened up to white settlers.

Upper Sandusky, the county seat, was laid out in 1843. Carey is the second town of importance in the county.

The county is rich in agricultural resources and has extensive gas and oil territory.





# FACTS AND FIGURES

TABLE I. THE COUNTIES OF OHIO

NAME	ORGANIZED	AREA IN SQUARE MILES	POPULATION (1920)	COUNTY SEAT
Adams . . . . .	1797	546	22,403	West Union
Allen . . . . .	1820	406	68,223	Lima
Ashland . . . . .	1846	421	24,627	Ashland
Ashtabula . . . . .	1807	723	65,545	Jefferson
Athens . . . . .	1805	487	50,430	Athens
Auglaize . . . . .	1848	397	29,527	Wapakoneta
Belmont . . . . .	1801	530	93,193	St. Clairsville
Brown . . . . .	1817	481	22,621	Georgetown
Butler . . . . .	1803	452	87,025	Hamilton
Carroll . . . . .	1832	387	15,942	Carrollton
Champaign . . . . .	1805	421	25,071	Urbana
Clark . . . . .	1817	407	80,728	Springfield
Clermont . . . . .	1800	465	28,291	Batavia
Clinton . . . . .	1810	411	23,036	Wilmington
Columbiana . . . . .	1803	534	83,131	Lisbon
Coshocton . . . . .	1811	558	29,595	Coshocton
Crawford . . . . .	1820	409	36,054	Bucyrus
Cuyahoga . . . . .	1807	463	943,495	Cleveland
Darke . . . . .	1809	586	42,911	Greenville
Defiance . . . . .	1845	405	24,549	Defiance
Delaware . . . . .	1808	445	26,013	Delaware
Erie . . . . .	1838	256	39,789	Sandusky
Fairfield . . . . .	1800	495	40,484	Lancaster
Fayette . . . . .	1810	413	21,518	Washington C. H.
Franklin . . . . .	1803	517	283,951	Columbus
Fulton . . . . .	1850	405	23,455	Wauseon
Gallia . . . . .	1803	449	23,311	Gallipolis
Geauga . . . . .	1805	416	15,036	Chardon
Greene . . . . .	1803	415	31,221	Xenia
Guernsey . . . . .	1810	518	45,352	Cambridge
Hamilton . . . . .	1790	407	493,678	Cincinnati
Hancock . . . . .	1820	535	38,394	Findlay
Hardin . . . . .	1820	473	29,167	Kenton
Harrison . . . . .	1814	401	19,625	Cadiz
Henry . . . . .	1820	414	23,362	Napoleon
Highland . . . . .	1805	549	27,610	Hillsboro
Hocking . . . . .	1818	411	23,291	Logan
Holmes . . . . .	1824	418	16,965	Millersburg
Huron . . . . .	1815	494	32,424	Norwalk
Jackson . . . . .	1816	404	27,342	Jackson
Jefferson . . . . .	1797	407	77,580	Steubenville
Knox . . . . .	1808	513	29,580	Mount Vernon
Lake . . . . .	1840	241	28,667	Painesville

TABLE I. THE COUNTIES OF OHIO (CONTINUED)

NAME	ORGANIZED	AREA IN SQUARE MILES	POPULATION (1920)	COUNTY SEAT
Lawrence . . . . .	1816	443	39,540	Ironton
Licking . . . . .	1808	669	56,426	Newark
Logan . . . . .	1817	451	30,104	Bellefontaine
Lorain . . . . .	1822	497	90,612	Elyria
Lucas . . . . .	1835	342	275,721	Toledo
Madison . . . . .	1810	497	19,662	London
Mahoning . . . . .	1846	427	186,310	Youngstown
Marion . . . . .	1824	409	42,004	Marion
Medina . . . . .	1818	435	26,067	Medina
Meigs . . . . .	1819	412	26,189	Pomeroy
Mercer . . . . .	1820	450	26,872	Celina
Miami . . . . .	1807	408	48,428	Troy
Monroe . . . . .	1813	448	20,660	Woodsfield
Montgomery . . . . .	1803	455	209,532	Dayton
Morgan . . . . .	1818	402	14,555	McConnelsville
Morrow . . . . .	1848	403	15,570	Mount Gilead
Muskingum . . . . .	1804	664	57,980	Zanesville
Noble . . . . .	1851	399	17,849	Caldwell
Ottawa . . . . .	1840	270	22,193	Port Clinton
Paulding . . . . .	1820	413	18,736	Paulding
Perry . . . . .	1817	399	36,098	New Lexington
Pickaway . . . . .	1810	490	25,788	Circleville
Pike . . . . .	1815	428	14,151	Waverly
Portage . . . . .	1807	521	36,269	Ravenna
Preble . . . . .	1808	416	23,238	Eaton
Putnam . . . . .	1820	482	27,751	Ottawa
Richland . . . . .	1813	503	55,178	Mansfield
Ross . . . . .	1789	668	41,556	Chillicothe
Sandusky . . . . .	1820	413	37,109	Fremont
Scioto . . . . .	1803	623	62,850	Portsmouth
Seneca . . . . .	1820	550	43,176	Tiffin
Shelby . . . . .	1819	413	25,923	Sidney
Stark . . . . .	1808	566	177,218	Canton
Summit . . . . .	1840	408	286,065	Akron
Trumbull . . . . .	1800	633	83,920	Warren
Tuscarawas . . . . .	1808	555	63,578	New Philadelphia
Union . . . . .	1820	446	20,918	Marysville
Van Wert . . . . .	1820	406	28,210	Van Wert
Vinton . . . . .	1850	412	12,075	Mc Arthur
Warren . . . . .	1803	413	25,716	Lebanon
Washington . . . . .	1788	630	43,049	Marietta
Wayne . . . . .	1796	557	41,346	Wooster
Williams . . . . .	1820	411	24,627	Bryan
Wood . . . . .	1820	612	44,892	Bowling Green
Wyandot . . . . .	1845	406	19,481	Upper Sandusky

TABLE II. COMPARATIVE RANK OF OHIO COUNTIES IN AGRICULTURE SHOWN NUMERICALLY, 1-88

	TOTAL VALUE OF ALL CROPS	CORN (bushels)	OATS (bushels)	WHEAT (bushels)	HAY (tons)	POTA- TOES (bushels)	APPLES (bushels)	DAIRY PROD- UCTS (dollars)	POULTRY AND EGGS (dollars)
Adams . . .	68	54	74	65	64	59	72	65	31
Allen . . .	23	31	14	24	21	51	55	38	17
Ashland . . .	49	51	32	31	41	43	35	56	49
Ashtabula . . .	47	84	34	85	1	5	37	1	24
Athens . . .	83	71	83	81	74	35	17	62	71
Auglaize . . .	43	33	15	38	66	50	65	63	29
Belmont . . .	66	62	47	61	34	52	12	18	58
Brown . . .	60	47	72	62	65	76	66	42	20
Butler . . .	28	17	66	13	47	25	70	23	48
Carroll . . .	79	78	46	71	68	57	27	52	73
Champaign . . .	24	11	36	30	33	56	84	25	66
Clark . . .	32	21	51	37	36	30	77	26	69
Clermont . . .	65	52	67	69	48	36	33	21	15
Clinton . . .	20	7	69	17	28	88	56	69	42
Columbiana . . .	55	64	26	53	22	16	7	15	18
Coshocton . . .	58	48	58	46	44	39	23	55	50
Crawford . . .	42	40	23	32	38	42	47	53	55
Cuyahoga . . .	52	87	49	82	62	3	5	17	60
Darke . . .	1	2	9	12	10	29	68	19	1
Defiance . . .	50	49	18	48	54	68	85	70	34
Delaware . . .	41	39	57	27	16	74	38	20	32
Erie . . .	61	61	40	49	79	15	6	68	79
Fairfield . . .	12	10	75	5	13	38	24	43	16
Fayette . . .	17	4	56	16	32	82	83	83	70
Franklin . . .	5	12	48	4	7	19	20	10	19
Fulton . . .	35	41	19	35	9	47	60	6	6
Gallia . . .	81	68	88	80	84	61	14	67	59
Geauga . . .	70	86	45	83	12	4	36	4	76
Greene . . .	21	8	50	23	29	63	49	40	64
Guernsey . . .	76	67	62	68	69	75	25	58	74
Hamilton . . .	56	56	79	59	71	2	54	8	51
Hancock . . .	8	14	10	7	17	62	67	33	5
Hardin . . .	10	18	11	39	25	60	80	72	28
Harrison . . .	82	81	59	72	70	86	28	73	80
Henry . . .	16	28	4	28	53	72	82	37	10
Highland . . .	26	22	80	11	15	83	71	46	3
Hocking . . .	88	73	85	79	86	49	52	85	85
Holmes . . .	51	45	38	36	60	31	32	30	14
Huron . . .	31	38	21	20	50	23	29	51	63
Jackson . . .	63	79	86	84	85	45	41	86	86
Jefferson . . .	86	83	52	76	78	80	18	57	81
Knox . . .	39	37	60	18	35	41	45	41	38
Lake . . .	80	88	53	87	77	21	3	50	84
Lawrence . . .	84	82	87	88	88	37	1	82	87
Licking . . .	13	24	55	8	2	44	15	14	4
Logan . . .	30	27	27	51	14	78	69	31	30
Lorain . . .	36	66	31	40	6	8	8	3	41
Lucas . . .	54	53	33	54	61	20	48	39	67

TABLE II. COMPARATIVE RANK OF OHIO COUNTIES IN AGRICULTURE (CONTINUED)

	TOTAL VALUE OF ALL CROPS	CORN (bushels)	OATS (bushels)	WHEAT (bushels)	HAY (tons)	POTA- TOES (bushels)	APPLES (bushels)	DAIRY PROD- UCTS (dollars)	POULTRY AND EGGS (dollars)
Madison . .	11	3	24	14	43	84	87	84	75
Mahoning . .	71	80	35	66	27	14	13	13	62
Marion . . .	33	26	12	44	51	58	78	71	36
Medina . . .	45	59	25	41	20	7	21	11	21
Meigs . . . .	85	72	81	77	82	26	26	74	53
Mercer . . . .	22	15	5	42	52	65	75	60	8
Miami . . . .	14	13	17	34	37	24	58	36	37
Monroe . . . .	77	74	61	78	80	28	31	45	65
Montgomery .	4	19	54	21	23	32	40	16	9
Morgan . . . .	87	76	77	75	72	55	57	76	57
Morrow . . . .	57	44	44	43	59	33	64	59	44
Muskingum . .	53	46	64	47	24	40	19	35	33
Noble . . . . .	75	70	70	60	73	71	61	66	72
Ottawa . . . .	72	65	43	58	83	79	44	81	77
Paulding . . .	29	25	2	67	67	87	88	78	43
Perry . . . . .	74	58	71	57	76	70	53	75	78
Pickaway . . .	3	1	76	1	46	54	62	80	52
Pike . . . . .	78	57	73	70	81	46	28	88	83
Portage . . . .	46	75	28	55	5	1	16	5	46
Preble . . . . .	18	9	63	19	56	73	50	47	35
Putnam . . . .	9	16	7	15	26	66	74	54	11
Richland . . .	37	43	29	22	30	9	34	29	40
Ross . . . . .	15	6	84	9	55	27	30	79	61
Sandusky . . .	27	35	16	10	58	18	43	49	45
Scioto . . . . .	73	55	82	73	75	17	39	77	82
Seneca . . . . .	6	23	13	3	19	22	51	32	13
Shelby . . . . .	40	29	6	52	57	67	76	48	22
Stark . . . . .	19	42	8	26	11	10	10	7	12
Summit . . . .	69	69	37	56	40	12	22	9	68
Trumbull . . .	59	77	39	74	3	11	42	2	26
Tuscarawas . .	64	60	42	50	49	34	11	22	56
Union . . . . .	34	30	41	29	18	85	59	27	23
Van Wert . . .	25	20	3	63	39	81	73	64	27
Vinton . . . .	62	85	78	86	87	48	46	87	88
Warren . . . .	44	32	68	33	45	77	63	34	54
Washington . .	67	63	65	64	63	13	2	44	39
Wayne . . . . .	7	34	22	2	4	6	9	12	2
Williams . . . .	48	50	20	45	31	64	86	24	25
Wood . . . . .	2	5	1	6	8	53	79	28	7
Wyandot . . .	38	36	30	25	42	69	81	61	47



TABLE III. INCORPORATED PLACES IN OHIO HAVING A  
POPULATION OF 1000 OR OVER—CENSUS OF 1920

Ada . . . . .	2,321	Bucyrus . . . . .	10,425
Addyston . . . . .	1,448	Byesville . . . . .	2,775
Akron . . . . .	208,435		
Alliance . . . . .	21,603	Cadiz . . . . .	2,084
Amherst . . . . .	2,485	Caldwell . . . . .	1,706
Amsterdam . . . . .	1,271	Cambridge . . . . .	13,104
Antwerp . . . . .	1,096	Canal Fulton . . . . .	1,057
Arcanum . . . . .	1,311	Canton . . . . .	87,091
Archbold . . . . .	1,125	Cardington . . . . .	1,109
Ashland . . . . .	9,249	Carey . . . . .	2,488
Ashtabula . . . . .	22,082	Carrollton . . . . .	2,192
Ashville . . . . .	1,032	Cedarville . . . . .	1,028
Athens . . . . .	6,418	Celina . . . . .	4,226
Avon . . . . .	1,460	Chagrin Falls . . . . .	2,237
		Chardon . . . . .	1,566
Barberton . . . . .	18,811	Chauncey . . . . .	1,178
Barnesville . . . . .	4,865	Cheviot . . . . .	4,108
Batavia . . . . .	1,088	Chillicothe . . . . .	15,831
Bedford . . . . .	2,677	Cincinnati . . . . .	401,247
Bellaire . . . . .	15,061	Circleville . . . . .	7,049
Bellefontaine . . . . .	9,336	Cleveland . . . . .	796,841
Belle Valley . . . . .	1,050	Cleveland Heights . . . . .	15,236
Bellevue . . . . .	5,776	Cleves . . . . .	1,454
Belpre . . . . .	1,317	Clyde . . . . .	3,099
Berea . . . . .	2,959	Coal Grove . . . . .	1,851
Bergholz . . . . .	1,215	Coldwater . . . . .	1,531
Bethel . . . . .	1,340	Columbiana . . . . .	2,114
Bethesda . . . . .	1,182	Columbus . . . . .	237,031
Bexley . . . . .	1,342	Columbus Grove . . . . .	1,768
Blanchester . . . . .	1,671	Conneaut . . . . .	9,343
Bluffton . . . . .	1,950	Continental . . . . .	1,093
Bowling Green . . . . .	5,788	Corning . . . . .	1,628
Bradford . . . . .	2,356	Coshocton . . . . .	10,847
Bratenahl . . . . .	1,000	Covington . . . . .	1,885
Bremen . . . . .	1,134	Crestline . . . . .	4,313
Bridgeport . . . . .	3,977	Crooksville . . . . .	3,311
Brilliant . . . . .	1,500	Cuyahoga Falls . . . . .	10,200
Brookville . . . . .	1,336	Dayton . . . . .	152,559
Bryan . . . . .	4,252	Defiance . . . . .	8,876
Buchtel . . . . .	1,178	Delaware . . . . .	8,756

Delphos . . . . .	5,745	Greenfield . . . . .	4,344
Delta . . . . .	1,543	Greenville . . . . .	7,104
Dennison . . . . .	5,524	Grover . . . . .	1,694
Deshler . . . . .	1,514		
Dillonvale . . . . .	1,643	Hamilton . . . . .	39,675
Dover . . . . .	8,101	Harrison . . . . .	1,309
Dover Center . . . . .	1,754	Hicksville . . . . .	2,378
Doylestown . . . . .	1,037	Hillsboro . . . . .	4,356
Dresden . . . . .	1,434	Holgate . . . . .	1,039
		Hubbard . . . . .	3,320
East Cleveland . . . . .	27,292	Hudson . . . . .	1,134
East Columbus . . . . .	1,328	Huron . . . . .	1,703
East Liverpool . . . . .	21,411		
East Palestine . . . . .	5,750	Independence . . . . .	1,074
East Youngstown . . . . .	11,237	Ironton . . . . .	14,007
Eaton . . . . .	3,210		
Elmwood Place . . . . .	3,991	Jackson . . . . .	5,842
Elyria . . . . .	20,474	Jacksonville . . . . .	1,046
Euclid . . . . .	3,363	Jamestown . . . . .	1,039
		Jefferson . . . . .	1,532
Fairport Harbor . . . . .	4,211		
Findlay . . . . .	17,021	Kenmore . . . . .	12,683
Flushing . . . . .	1,026	Kent . . . . .	7,070
Forest . . . . .	1,143	Kenton . . . . .	7,690
Fort Recovery . . . . .	1,092		
Fostoria . . . . .	9,987	Lakewood . . . . .	41,732
Franklin . . . . .	3,071	Lancaster . . . . .	14,706
Fredericktown . . . . .	1,194	Lebanon . . . . .	3,396
Fremont . . . . .	12,468	Leetonia . . . . .	2,688
		Leipsic . . . . .	1,788
Galion . . . . .	7,374	Lewisburg . . . . .	1,103
Gallipolis . . . . .	6,070	Lima . . . . .	41,326
Garfield Heights . . . . .	2,550	Linden Heights . . . . .	1,731
Garrettsville . . . . .	1,119	Lisbon . . . . .	3,113
Geneva . . . . .	3,081	Lockland . . . . .	4,007
Georgetown . . . . .	1,670	Lodi . . . . .	1,240
Germantown . . . . .	1,827	Logan . . . . .	5,493
Gibsonburg . . . . .	1,737	London . . . . .	4,080
Girard . . . . .	6,556	Lorain . . . . .	37,295
Glendale . . . . .	1,759	Loudonville . . . . .	1,887
Glouster . . . . .	3,140	Louisville . . . . .	2,008
Grandview Heights . . . . .	1,185	Loveland . . . . .	1,557
Granville . . . . .	1,440	Lowellville . . . . .	2,214

Mc Arthur . . . . .	1,307	New Richmond . . . . .	1,714
McComb . . . . .	1,012	New Straitsville . . . . .	2,208
McConnelsville . . . . .	1,618	Newton Falls . . . . .	1,100
Manchester . . . . .	1,824	Niles . . . . .	13,080
Mansfield . . . . .	27,824	North Baltimore . . . . .	2,439
Maple Heights . . . . .	1,732	North Canton . . . . .	1,597
Marblehead . . . . .	1,048	North College Hill . . . . .	1,104
Marietta . . . . .	15,140	North Olmsted . . . . .	1,419
Marion . . . . .	27,891	Norwalk . . . . .	7,379
Martins Ferry . . . . .	11,634	Norwood . . . . .	24,966
Marysville . . . . .	3,635		
Massillon . . . . .	17,428	Oak Harbor . . . . .	1,858
Maumee . . . . .	3,195	Oak Hill . . . . .	1,394
Mechanicsburg . . . . .	1,470	Oakwood . . . . .	1,473
Medina . . . . .	3,430	Oberlin . . . . .	4,236
Miamisburg . . . . .	4,383	Orrville . . . . .	4,107
Middleport . . . . .	3,772	Osborn . . . . .	1,059
Middletown . . . . .	23,594	Ottawa . . . . .	2,167
Milford . . . . .	1,525	Oxford . . . . .	2,146
Millersburg . . . . .	2,098		
Minerva . . . . .	2,261	Painesville . . . . .	7,272
Mingo Junction . . . . .	4,616	Paulding . . . . .	2,106
Minster . . . . .	1,538	Peebles . . . . .	1,008
Monroeville . . . . .	1,185	Perrysburg . . . . .	2,429
Montpelier . . . . .	3,052	Piqua . . . . .	15,044
Mount Gilead . . . . .	1,837	Plain City . . . . .	1,330
Mount Healthy . . . . .	2,255	Plymouth . . . . .	1,374
Mount Sterling . . . . .	1,113	Pomeroy . . . . .	4,294
Mount Vernon . . . . .	9,237	Port Clinton . . . . .	3,928
Murray City . . . . .	1,493	Portsmouth . . . . .	33,011
Napoleon . . . . .	4,143	Ravenna . . . . .	7,219
Navarre . . . . .	1,385	Reading . . . . .	4,540
Nelsonville . . . . .	6,440	Richwood . . . . .	1,601
Newark . . . . .	26,718	Ripley . . . . .	1,529
New Boston . . . . .	4,817	Rittman . . . . .	1,803
New Bremen . . . . .	1,502	Rockford . . . . .	1,075
Newburgh Heights . . . . .	2,957	Rocky River . . . . .	1,861
New Carlisle . . . . .	1,019	Roseville . . . . .	1,349
Newcomerstown . . . . .	3,389		
New Lexington . . . . .	3,157	Sabina . . . . .	1,504
New London . . . . .	1,470	St. Bernard . . . . .	6,312
New Philadelphia . . . . .	10,718	St. Clairsville . . . . .	1,561

St. Marys . . . . .	5,679	Urbana . . . . .	7,621
St. Paris . . . . .	1,226	Utica . . . . .	1,658
Salem . . . . .	10,305	Van Wert . . . . .	8,100
Salineville . . . . .	2,700	Vermilion . . . . .	1,436
Sandusky . . . . .	22,897	Versailles . . . . .	1,563
Sciotoville . . . . .	2,182	Wadsworth . . . . .	4,742
Sebring . . . . .	3,541	Wapakoneta . . . . .	5,295
Shadyside . . . . .	3,084	Warren . . . . .	27,050
Shaker Heights . . . . .	1,616	Washington Court House . . . . .	7,962
Shawnee . . . . .	1,918	Wauseon . . . . .	3,035
Shelby . . . . .	5,578	Waverly . . . . .	1,625
Shreve . . . . .	1,094	Wellington . . . . .	2,245
Sidney . . . . .	8,590	Wellston . . . . .	6,687
Somerset . . . . .	1,339	Wellsville . . . . .	8,849
South Charleston . . . . .	1,267	West Carrollton . . . . .	1,430
South Euclid . . . . .	1,605	Westerville . . . . .	2,480
South Zanesville . . . . .	1,010	West Jefferson . . . . .	1,170
Spencerville . . . . .	1,543	West Liberty . . . . .	1,347
Springfield . . . . .	60,840	West Milton . . . . .	1,256
Steubenville . . . . .	28,508	West Park . . . . .	8,581
Struthers . . . . .	5,847	Wickliffe . . . . .	1,508
Stryker . . . . .	1,014	Willard . . . . .	3,889
Swanton . . . . .	1,248	Willoughby . . . . .	2,656
Sylvania . . . . .	1,222	Wilmington . . . . .	5,037
Tiffin . . . . .	14,375	Woodsfield . . . . .	2,394
Tippecanoe City . . . . .	2,426	Wooster . . . . .	8,204
Toledo . . . . .	243,164	Wyoming . . . . .	2,323
Toronto . . . . .	4,684	Xenia . . . . .	9,110
Troy . . . . .	7,260	Yellow Springs . . . . .	1,264
Uhrichsville . . . . .	6,428	Yorkville . . . . .	1,754
Union City . . . . .	1,534	Youngstown . . . . .	132,358
Upper Sandusky . . . . .	3,708	Zanesville . . . . .	29,569



TABLE IV. POPULATION OF THE UNITED STATES AND POSSESSIONS — 1920

United States, including the District of Columbia . . . . .	105,710,620
Alaska . . . . .	55,036
Guam . . . . .	13,275
Hawaii . . . . .	255,912
Military and naval, etc., service abroad . . . . .	117,238
Panama Canal Zone . . . . .	22,858
Philippine Islands . . . . .	10,350,640
Porto Rico . . . . .	1,299,809
Samoa . . . . .	8,056
Virgin Islands . . . . .	26,051
<i>Total</i>	<u>117,859,495</u>

TABLE V. POPULATION OF THE TEN LARGEST CITIES IN THE UNITED STATES

	1910	1920
New York . . . . .	4,766,883	5,620,048
Chicago . . . . .	2,185,283	2,701,705
Philadelphia . . . . .	1,549,008	1,823,779
Detroit . . . . .	465,766	993,678
Cleveland . . . . .	560,663	796,841
St. Louis . . . . .	687,029	772,897
Boston . . . . .	670,585	748,060
Baltimore . . . . .	558,485	733,826
Pittsburgh . . . . .	533,905	588,343
Los Angeles . . . . .	319,198	576,673

TABLE VI. POPULATION OF THE LEADING CITIES  
OF OHIO

	1900	1910	1920
Cleveland . . . . .	381,768	560,663	796,841
Cincinnati . . . . .	325,902	363,591	401,247
Toledo . . . . .	131,822	168,497	243,164
Columbus . . . . .	125,560	181,511	237,031
Akron . . . . .	42,728	69,067	208,435
Dayton . . . . .	85,333	116,577	152,559
Youngstown . . . . .	44,885	79,066	132,358
Canton . . . . .	30,667	50,217	87,091
Springfield . . . . .	38,253	46,921	60,840
Lakewood . . . . .	3,355	15,181	41,732
Lima . . . . .	21,723	30,508	41,326
Hamilton . . . . .	23,914	35,279	39,675
Lorain . . . . .	16,028	28,883	37,295
Portsmouth . . . . .	17,870	23,481	33,011
Zanesville . . . . .	23,538	28,026	29,569
Steubenville . . . . .	14,349	22,391	28,508
Marion . . . . .	11,862	18,232	27,891
Mansfield . . . . .	17,640	20,768	27,824
East Cleveland . . . . .	2,757	9,179	27,292
Warren . . . . .	8,529	11,081	27,050
Newark . . . . .	18,157	25,404	26,718

TABLE VII. GROWTH IN POPULATION OF RIVAL CITIES

YEAR	CLEVELAND	DETROIT	CINCINNATI	BALTIMORE	ST. LOUIS	BOSTON
1850 . . . . .	17,034	21,019	115,435	169,054	77,860	136,881
1860 . . . . .	43,417	45,619	161,044	212,418	160,773	177,840
1870 . . . . .	92,829	79,577	216,239	267,354	310,864	250,526
1880 . . . . .	160,146	116,340	255,139	332,313	350,518	362,839
1890 . . . . .	261,353	205,876	296,908	434,439	451,770	448,477
1900 . . . . .	381,768	285,704	325,902	508,957	575,238	560,892
1910 . . . . .	560,663	465,766	363,591	558,485	687,029	670,585
1920 . . . . .	796,841	993,678	401,247	733,826	772,897	748,060

TABLE VIII. PEOPLE OF FOREIGN BIRTH IN CLEVELAND

COUNTRY	1900	1910	1920
Germany . . . . .	39,893	44,222	41,408
British Isles and Canada . . . . .	33,001	36,021	36,301
Austria . . . . .	12,032	18,981	42,059
Hungary . . . . .	3,210	9,558	31,083
Russia . . . . .	1,485	7,726	25,477
Italy . . . . .	635	3,065	10,838

TABLE IX. COMPARISON OF AREAS OF CLEVELAND  
AND DETROIT, 1830-1920

YEAR	CLEVELAND	DETROIT
	Square Miles	Square Miles
1830 . . . . .	2.0	3.5
1840 . . . . .	2.25	5.5
1850 . . . . .	2.5	8.25
1860 . . . . .	7.0	12.0
1870 . . . . .	10.0	14.0
1880 . . . . .	28.0	18.0
1890 . . . . .	28.0	26.0
1900 . . . . .	33.0	32.0
1910 . . . . .	44.0	40.0
1920 . . . . .	56.0	78.0

TABLE X. VALUE OF OHIO MANUFACTURES, 1850-1920

	PER CAPITA	TOTAL
1850 . . . . .	\$31.68	\$62,692,000
1860 . . . . .	51.90	121,692,000
1870 . . . . .	101.00	269,713,000
1880 . . . . .	108.90	348,298,000
1890 . . . . .	174.73	641,688,000
1900 . . . . .	200.21	832,438,000
1910 . . . . .	301.63	1,436,936,000
1920 . . . . .	378.89	5,100,298,728

TABLE XI. PER CAPITA VALUE OF AGRICULTURAL  
PRODUCTION IN OHIO, 1850-1920

1850 . . . . .	\$31.44	1890 . . . . .	47.14
1860 . . . . .	34.78	1900 . . . . .	37.22
1870 . . . . .	44.76	1910 . . . . .	40.80
1880 . . . . .	45.21	1920 . . . . .	45.70



FIG. 175. Corn acreage, 1919

Each dot represents 1000 acres of corn land. (Courtesy of State Department of Agriculture, Columbus, Ohio)

## LEADING CORN COUNTIES

COUNTY	BUSHEL8 OF CORN (1919)	ACRES OF CORN LAND (1919)
Pickaway . . . . .	4,231,316	85,871
Darke . . . . .	4,120,901	95,619
Madison . . . . .	3,890,817	81,882
Fayette . . . . .	3,732,009	74,476
Wood . . . . .	3,638,689	86,160
Clinton . . . . .	3,548,115	72,820
Ross . . . . .	3,536,787	78,835
Greene . . . . .	3,371,656	69,076





FIG. 176. Swine on Ohio farms

Each dot represents 1000 swine. (Courtesy of State Department of Agriculture, Columbus, Ohio)

## CHIEF SWINE-RAISING COUNTIES

COUNTY	TOTAL NUMBER SWINE (1919)	TOTAL VALUE (1919)
Darke . . . . .	100,425	\$1,604,478
Preble . . . . .	94,459	1,783,033
Clinton . . . . .	83,780	1,451,601
Greene . . . . .	83,288	1,410,860
Fayette . . . . .	79,309	1,288,215
Madison . . . . .	76,759	1,296,101
Hancock . . . . .	65,291	1,083,854
Clark . . . . .	64,171	1,085,375

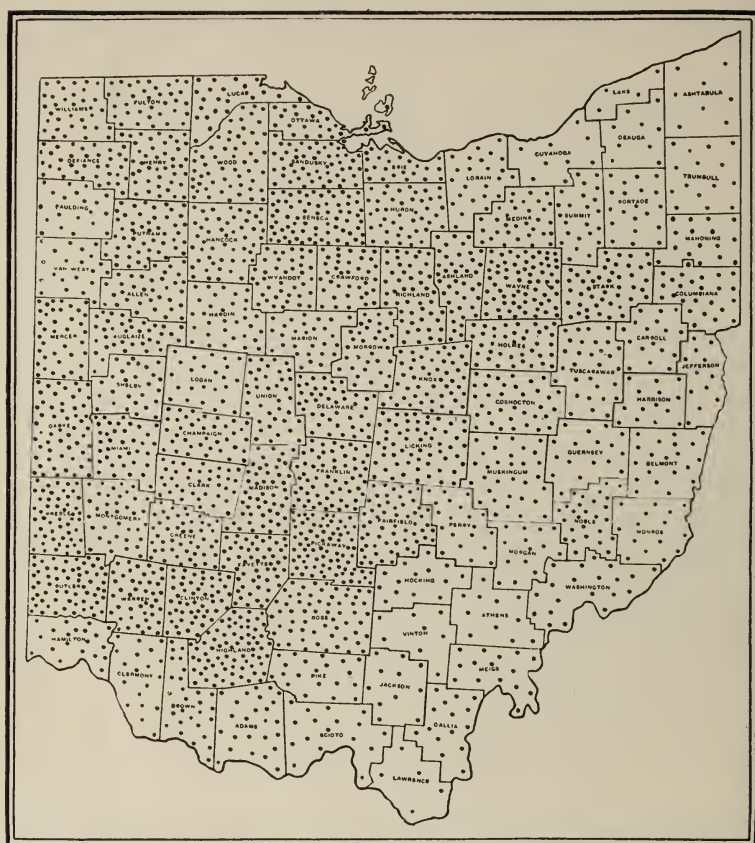


FIG. 177. Wheat acreage, 1919

Each dot represents 1000 acres of wheat land. (Courtesy of State Department of Agriculture, Columbus, Ohio)

## LEADING WHEAT COUNTIES

COUNTY	BUSHELS OF WHEAT (1919)	ACRES OF WHEAT LAND (1919)
Pickaway . . . . .	1,630,867	78,069
Wayne . . . . .	1,488,173	66,418
Seneca . . . . .	1,471,131	69,166
Franklin . . . . .	1,312,614	59,863
Fairfield . . . . .	1,263,616	58,866
Wood . . . . .	1,224,653	55,554
Hancock . . . . .	1,195,994	55,067
Licking . . . . .	1,186,416	58,570

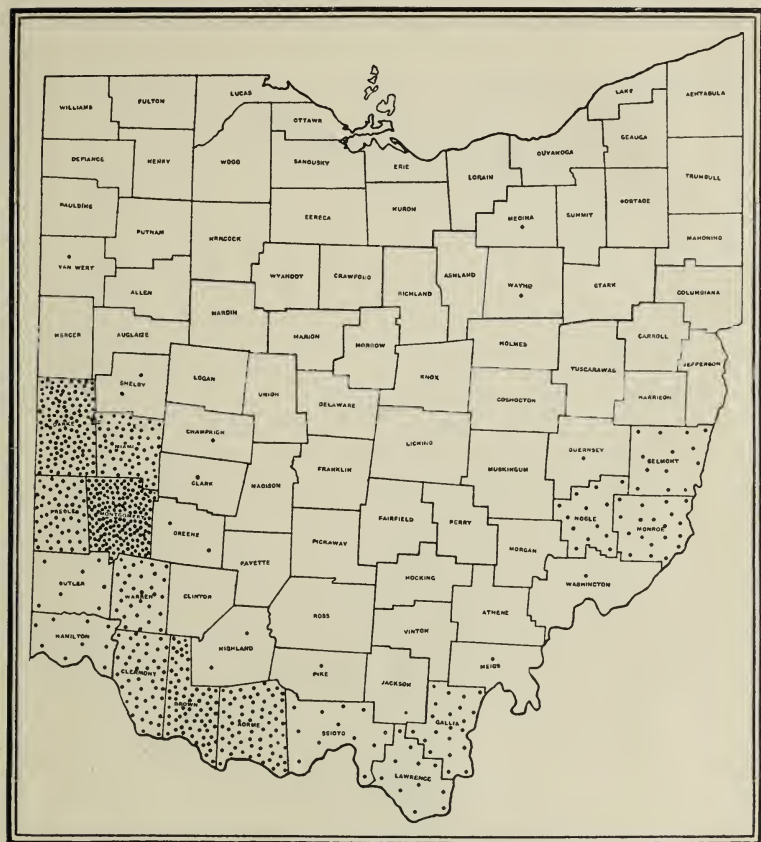


FIG. 178. Production of tobacco in Ohio

Each dot on this map represents 100 acres of land given to the raising of tobacco.  
(Courtesy of State Department of Agriculture, Columbus, Ohio)

## LEADING TOBACCO COUNTIES

COUNTY	POUNDS OF TOBACCO (1919)	ACRES OF TOBACCO LAND (1919)
Montgomery . . . . .	13,262,091	17,263
Darke . . . . .	11,572,974	13,312
Brown . . . . .	6,038,387	7,257
Adams . . . . .	5,547,412	6,798
Miami . . . . .	5,480,058	6,297
Preble . . . . .	4,374,122	5,189
Clermont . . . . .	3,807,943	4,725
Warren . . . . .	2,481,607	3,000

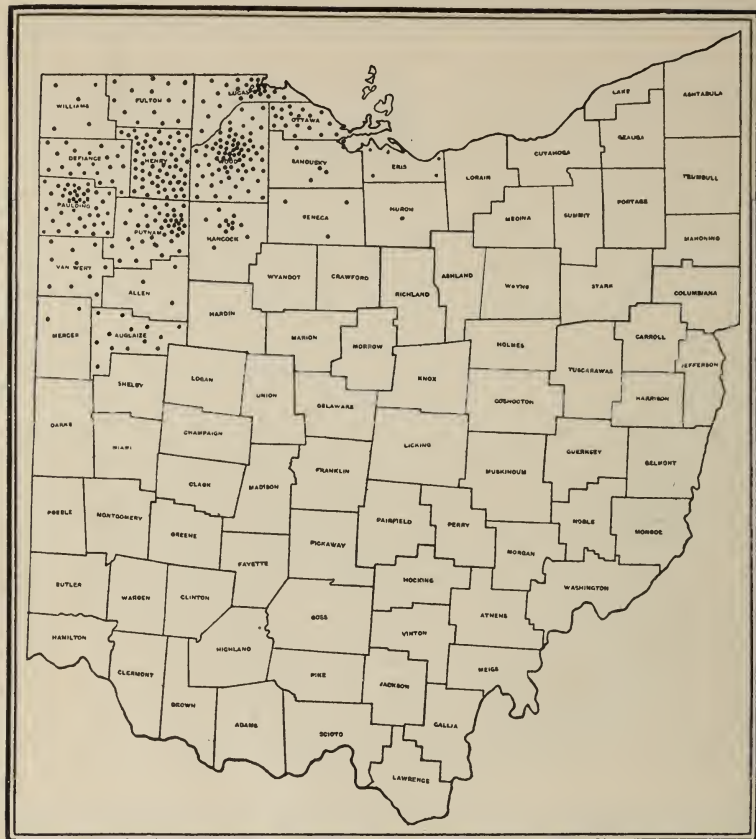


FIG. 179. Area of sugar-beet production

Each dot represents 100 acres of land planted with sugar beets. (Courtesy of State Department of Agriculture, Columbus, Ohio)

## LEADING SUGAR-BEET COUNTIES

COUNTY	TONS OF SUGAR BEETS (1919)	ACRES OF SUGAR-BEET LAND (1919)
Wood . . . . .	82,328	7,000
Henry . . . . .	74,931	6,002
Putnam . . . . .	53,488	4,812
Paulding . . . . .	28,839	3,966
Lucas . . . . .	26,790	2,385
Defiance . . . . .	19,625	2,152
Ottawa . . . . .	19,583	1,807
Hancock . . . . .	14,916	1,244
Fulton . . . . .	14,144	1,329





FIG. 180. Production of peaches in Ohio

Showing number of trees of bearing age in 1919. Each dot represents 1000 trees.  
(Courtesy of State Department of Agriculture, Columbus, Ohio)

## CHIEF PEACH-GROWING COUNTIES

COUNTY	BUSHEL HARVESTED (1919)	TREES OF BEARING AGE (1919)
Ottawa . . . . .	70,313	548,737
Lawrence . . . . .	49,193	125,001
Jefferson . . . . .	40,655	53,621
Tuscarawas . . . . .	36,190	61,126
Belmont . . . . .	34,043	72,802
Erie . . . . .	33,574	97,060
Lake . . . . .	30,840	97,163
Lorain . . . . .	29,224	66,840



FIG. 181. Production of grapes in Ohio

Showing the number of vines of bearing age in 1919. Each dot represents 1000 vines.  
(Courtesy of State Department of Agriculture, Columbus, Ohio)

## CHIEF GRAPE-GROWING COUNTIES

COUNTY	POUNDS OF GRAPES (1919)	VINES OF BEARING AGE (1919)
Cuyahoga . . . . .	7,504,907	1,480,827
Erie . . . . .	6,008,277	648,823
Lorain . . . . .	5,623,181	962,055
Lake . . . . .	5,007,714	761,600
Ottawa . . . . .	3,943,416	1,051,439
Ashtabula . . . . .	2,375,697	568,710
Lucas . . . . .	1,078,315	208,521

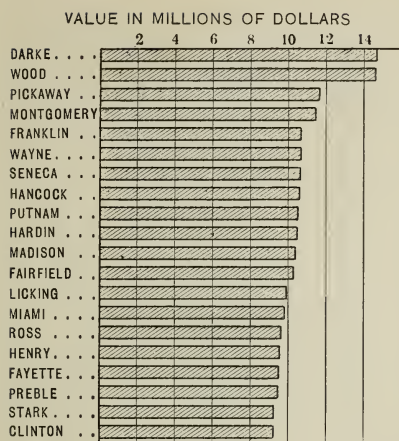


FIG. 182. Value of all farm crops in Ohio's leading agricultural counties

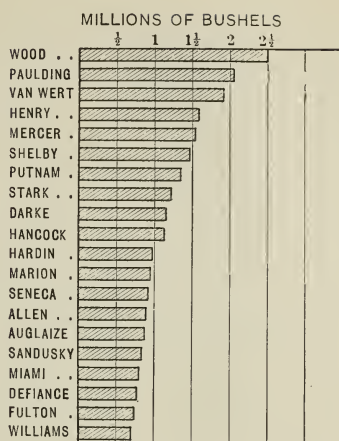


FIG. 183. Leading counties in the production of oats

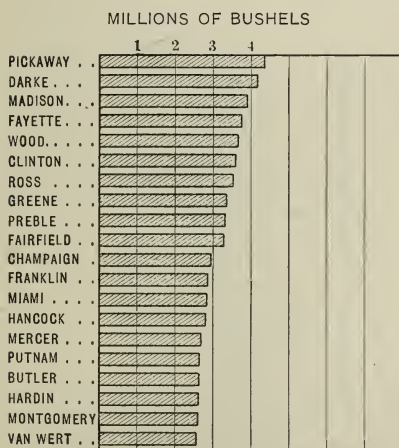


FIG. 184. Leading counties in the production of corn

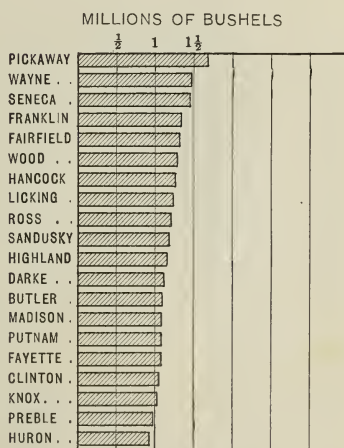


FIG. 185. Leading counties in the production of wheat

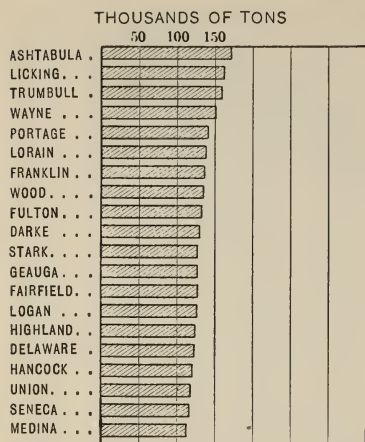


FIG. 186. Leading counties in the production of hay and forage

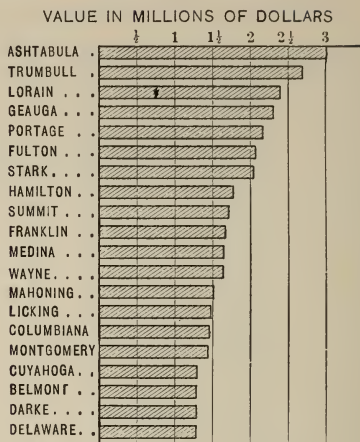


FIG. 187. Leading counties in dairy products

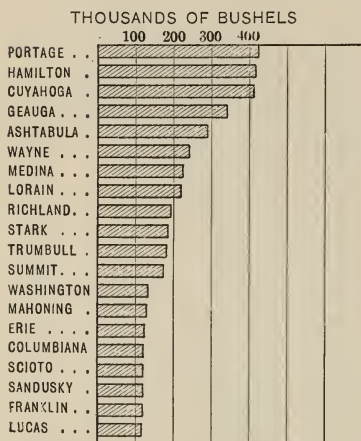


FIG. 188. Leading counties in the production of potatoes

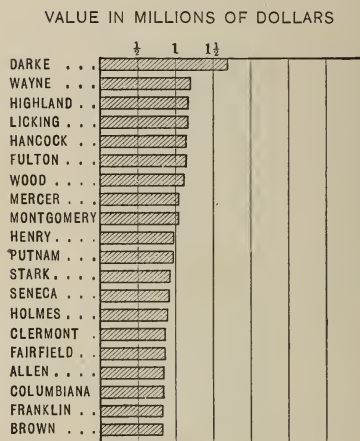


FIG. 189. Leading counties in the production of chickens and eggs



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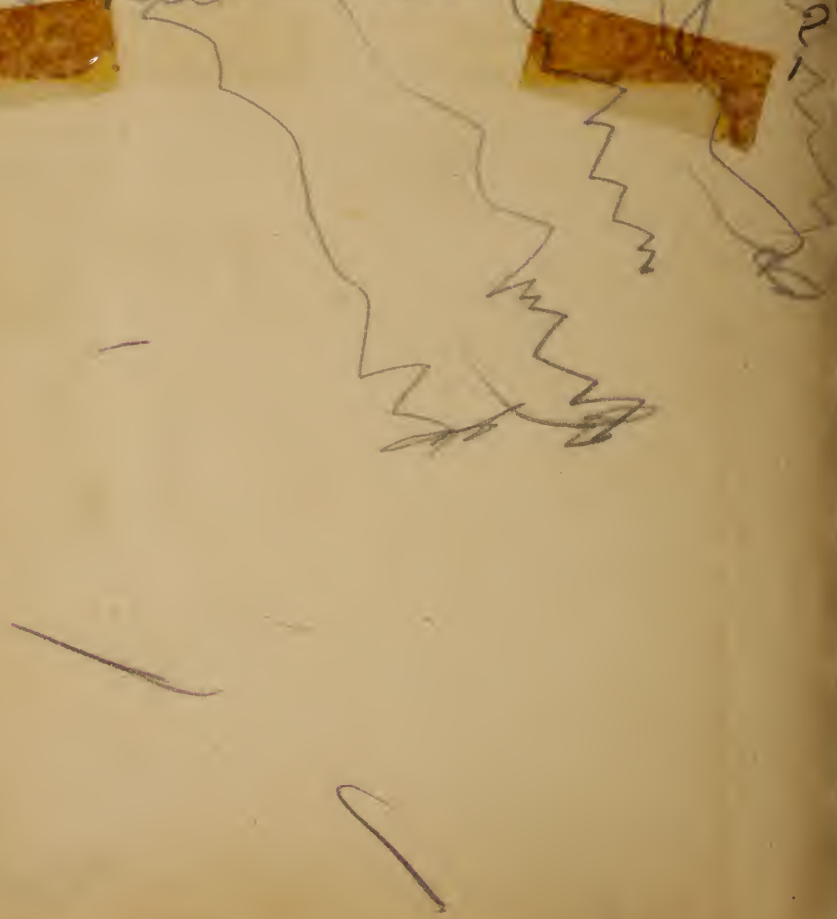
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1. What was real name?  
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2. Where is the Mc Guy  
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